Regulatory Analysis Form

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IRRC Number: 2140

(1) Agency

Department of Environmental Protection

(2) I.D. Number (Governor's Office Use)

7-359

(3) Short Title

Disinfectants and Disinfection Byproducts Rule

(4) PA Code Cite

25 Pa. Code, Chapter 109

(5) Agency Contacts & Telephone Numbers

Primary Contact: Sharon Freeman, 783-1303

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(6) Type of Rulemaking (Check One)

____Proposed Rulemaking
_X_Final Order Adopting Regulation
____Final Order, Proposed Rulemaking Omitted

(7) Is a 120-Day Emergency Certification Attached?

_X_ No
____ Yes: By the Attorney General
____ Yes: By the Governor

(8) Briefly explain the regulation in clear and nontechnical language.

The final amendments will regulate disinfection practices at public water systems in order to eliminate or minimize disinfection byproducts that may cause harmful health effects. The final amendments will incorporate the provisions of the *Federal Disinfectants and Disinfection Byproducts Rule* (D/DBPR) that was promulgated by the United States Environmental Protection Agency (EPA) on December 16, 1998.

The D/DBPR was promulgated concurrently with a companion rule, the *Federal Interim Enhanced Surface Water Treatment Rule* (IESWTR). The IESWTR is intended to improve the control of microbial pathogens, specifically *Cryptosporidium parvum*. The coexistence of the IESWTR and the D/DBPR inherently forces tradeoffs between microbial risks and disinfection risks. It is felt, however, that the final balance of these tradeoffs is at an optimal point whereby the risk levels of each are at an acceptable level of tolerance.

(9) State the statutory authority for the regulation and any relevant state or federal court decisions.

The Pennsylvania Safe Drinking Water Act, 35 P.S. § 721.4(a), and sections 1917-A and 1920-A of the Administrative Code of 1929, 71 P.S. §§ 510-7 and 510-20(b).

(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

Yes. Section 1413 of the Federal Safe Drinking Water Act, 42 U.S.C. § 300g-2a, requires that, in order for the state to retain primary enforcement authority (primacy), the state must adopt drinking water regulations that are "no less stringent than" the national primary drinking water regulations not later than 2 years after the date on which the regulations are promulgated by the United States Environmental Protection Agency (EPA), or must ask EPA for an extension of up to 2 years. The federal drinking water primacy regulations at 40 CFR § 142.12(a) also require the state to adopt all new and revised national primary drinking water regulations contained in 40 CFR Part 141 in order to retain primary enforcement responsibility. Furthermore, Section 4(a) of the Pennsylvania Safe Drinking Water Act, 35 P.S. § 721.4(a), requires the Environmental Quality Board to adopt maximum contaminant levels and treatment technique requirements no less stringent than those promulgated under the federal act for all contaminants regulated under the national primary and secondary drinking water regulations. Also Section 5(a) of the state act, 35 P.S. § 721.5(a), requires the Department to adopt and implement a public water supply program which includes those program elements necessary to assume state primary enforcement responsibility under the federal act.

EPA promulgated the *Federal Interim Enhanced Surface Water Treatment Rule* (IESWTR) and *Disinfectants and Disinfection Byproduct Rule* (D/DBPR) on December 16, 1998. Therefore, Pennsylvania must have adopted regulations implementing the federal rules by December 16, 2000. However, the Department submitted a primacy extension request to the EPA to adopt the federal D/DBPR by no later than August 31, 2001. It is expected that EPA will grant the extension. If so, then failure to adopt the regulation by August 31, 2001 may result in Pennsylvania losing its primary enforcement responsibility.

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

The public health benefits of disinfection practices are significant and well-recognized. Disinfection, however, poses its own health risks. The final amendments will implement standards that will either minimize or eliminate harmful disinfection byproducts in public water systems.

(12) State the public health, safety, environmental or general welfare risks associated with non-regulation.

Although disinfectants such as chlorine, hypochlorites, and chlorine dioxide are effective in controlling many harmful microorganisms, they react with organic and inorganic matter in the water to form disinfection byproducts (DBPs). These DBPs, as well as the original disinfectants, pose health risks at certain levels.

Since the discovery of DBPs in drinking water in 1974, numerous toxicological studies have been conducted that show DBPs to be carcinogenic and/or cause reproductive or developmental effects in laboratory animals. Additionally, exposure to high levels of disinfectants over long periods of time may cause health problems, including blood and kidney damage. While many of these studies have been conducted at high doses, the weight of the evidence indicates that disinfectants and DBPs present a potential public health problem that must be addressed.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

The final amendments will affect 2,565 public water systems which serve a total population of over 10.4 million Pennsylvanians. These 10.4 million people will benefit from a significant reduction in health risks associated with disinfection practices, such as bladder cancer and kidney damage.

(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

The final amendments are not expected to produce any adverse impacts.

(15) List the persons, groups or entities that will be required to comply with the regulation. (Approximate the number of people who will be required to comply.)

The final amendments will affect 2,565 public water systems in Pennsylvania. Each of these water systems will need to comply with various requirements of the amendments.

(16) Describe the communications with and input from the public in the development and drafting of the regulation. List the persons and/or groups who where involved, if applicable.

The federal D/DBPR was developed through the regulatory negotiation process with many participants. These participants included public water systems, environmental groups, and public health groups. Both the Water Resources Advisory Committee (WRAC) and the Small Water Systems Technical Assistance Center Advisory Board (TAC) reviewed drafts of the proposed amendments and provided comments and suggestions. A thirty-day public comment period occurred from September 2, 2000 to October 2, 2000. During this public comment period, several sectors of the regulated community provided comments. The EPA also provided comments during this period. The WRAC and TAC reviewed the final amendments. The WRAC provided comments on the final amendments.

(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required.

The EPA has estimated that a total annual cost of almost $684 million will be borne by the regulated community, nationwide, as a result of this rule. It is estimated that Pennsylvania water systems will bear over $23 million of this total annual cost.

(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting or consulting procedures which may be required.

The D/DBPR will affect 2,565 public water systems in Pennsylvania. Of these 2,565 systems, 760 are owned by local governments in the form of water and municipal authorities. The local governments that own these systems will incur an estimated annual cost of $6,919,217.

It should be noted that, for the purposes of the table in question (20) on the following page, the local government costs are for compliance with the D/DBPR provisions. That is, local government is considered in this analysis to be a part of the regulated community, not the regulating community. Therefore, the $6.9 million estimate provided above is a part of the $23 million estimate provided in the previous question (17).

(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting or consulting procedures which may be required.

The EPA has estimated that a total annual cost of $17.3 million will be borne by the regulating state agencies, nationwide, as a result of this rule. It is estimated that DEP will bear almost $585,000 of this total annual cost.

(20) In the table below, provide an estimate of the fiscal savings and cost associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY Year	FY +1 Year	FY +2 Year	FY +3 Year	FY +4 Year	FY +5 Year
SAVINGS:	$	$	$	$	$	$
Regulated Community	0	0	0	0	0	0
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Savings	0	0	0	0	0	0
COSTS:						
Regulated Community	16,144,838	16,144,838	16,144,838	16,144,838	16,144,838	16,144,838
Local Government	6,919,217	6,919,217	6,919,217	6,919,217	6,919,217	6,919,217
State Government	584,900	584,900	584,900	584,900	584,900	584,900
Total Costs	23,648,955	23,648,955	23,648,955	23,648,955	23,648,955	23,648,955
REVENUE LOSSES:						
Regulated Community	0	0	0	0	0	0
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Revenue Losses	0	0	0	0	0	0

(20a) Explain how the cost estimates listed above were derived.

The costs listed above were derived from the nationwide costs compiled and published by the EPA in the Preamble of the *Federal Disinfectants and Disinfection Byproducts Rule* (Federal Register, Vol. 63, No. 241). The Pennsylvania costs are the national costs multiplied by the ratio of the number of Pennsylvania systems (2,565) to the number of nationwide systems (76,051)[1]. That is,

The ratio of PA systems to nationwide systems is 2,565 / 76,051 = 0.03373
Estimated nationwide regulated community cost[2] = $683,838,000
Estimated annual cost to Pennsylvania water systems = $683,838,000 x 0.03373 = $23,064,055
Percentage of Pennsylvania systems that are "Local Government" water and municipal authorities = 30% (from the Safe Drinking Water Program's PADWIS data system)

Note: "Local Government" in this analysis is the regulated community, not regulating agencies.

Estimated annual cost to Pennsylvania systems that are local government authorities = $23,064,055 x 0.30 = $6,919,217
Estimated annual cost to Pennsylvania systems that are not local government = $23,064,055 – $6,919,217 = $16,144,838
Estimated nationwide state agencies cost[3] = $17,342,000
Estimated DEP annual cost to administer the D/DBPR = $17,342,000 x 0.03373 = $584,900

1 – Federal Register, Vol. 63, No. 241, pg. 69459
2,3 – Federal Register, Vol. 63, No. 241, pg. 69437, Table IV-6 (at 7 % cost of capital)

(20b) Provide the past three year expenditure history for programs affected by the regulation.

Program	FY-3	FY-2	FY-1	Current FY
Safe Drinking Water	$7,558,411	$8,648,320	$8,306,684	$8,855,911

(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

The final amendments are not expected to produce any adverse effects. The EPA has estimated that the nation may realize a total annual benefit of up to $4 billion as a result of avoiding up to 2,232 cases of bladder cancer per year[4]. In Pennsylvania, this translates into a total annual benefit of up to $175 million in avoiding up to 98 cases of bladder cancer per year. This benefit was derived from multiplying the national benefit by the ratio of DBP-exposed Pennsylvanians to DBP-exposed U.S. citizens.

That is, # Pennsylvanians potentially exposed to DBPs = 10,455,296
# U.S. citizens exposed to DBPs[5] = 239,137,010
ratio = 10,455,296 / 239,137,010 = 0.04372

nationwide annual benefit[6] = $4,000,000,000
Pennsylvania annual benefit = $4,000,000,000 x 0.04372 = $174,880,000

nationwide annual bladder cancer cases[7] = 2,232
Pennsylvania annual bladder cancer cases = 2,232 x 0.04372 = 97.6

4,6,7 – Federal Register, Vol. 63, No. 241, pg. 69441
5 – Federal Register, Vol. 63, No. 241, pg. 69438, Table IV-7

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

No nonregulatory alternatives were considered. This is a federal rule that must be either complied with, or adopted, by the individual states.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

No alternative regulatory schemes were considered. This is a federal rule that must be either complied with, or adopted, by the individual states.

(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulation.

The final amendments contain no provisions that are more stringent than the federal D/DBP rule.

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

The federal D/DBP rule will need to be either complied with, or adopted, by all of the other 49 states. Because of this, the final amendments will not put Pennsylvania at a competitive disadvantage with any other state.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The final amendments will be incorporated into the existing language of 25 Pa Code Chapter 109. Other than this incorporation, the final amendments should not affect any existing or proposed regulations of DEP, or any other state agency.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

No public hearings or informational meetings are scheduled for these final amendments.

(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.

The final amendments will require that water systems comply with two to four new contaminant standards, as well as with one to three new disinfectant residual standards. In order to comply with these standards, the water system will need to monitor and report these contaminants and disinfectant residuals. Water systems which treat with conventional filtration will also need to monitor and report total organic carbon, both in the source water and in the treated water.

It is anticipated that this additional monitoring and reporting should be facilitated by our current data reporting forms and that little, if any, additional data forms or paperwork will be necessary.

(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

The final amendments should have no effects on one particular group relative to another since it will apply to most of Pennsylvania's population. However, the Safe Drinking Water Program is prepared to develop special provisions, or provide special services, to accommodate any such group as the need arises.

(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?

The final amendments are targeted for promulgation in July 2001. The amendments' components must be complied with by as early as January 2002. Various permits and approvals resulting from the amendments will be obtained in accordance with the procedures and schedules of both the amendments and currently existing regulations.

(31) Provide the schedule for continual review of the regulation.

The amendments will be reviewed in accordance with the Sunset Review Schedule published by the Department.

DISINFECTANTS & DISINFECTION BYPRODUCTS RULE (D/DBPR)

COMMENT AND RESPONSE DOCUMENT

List of Commentators

1. Mr. Jason Gambatese
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   Philadelphia, PA 19103

2. Mr. Robert R. Hirst
   Director of Technical Affairs
   International Bottled Water Association
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   Alexandria, VA 22314

3. Mr. W. Kent Kise, President
   Pennsylvania Bottled Water Association
   405 Nestle Way
   Breinigsville, PA 18031

4. Mr. Paul A. Zielinski
   Director of Water Quality
   Pennsylvania-American Water Company
   800 West Hershey Park Drive
   Hershey, PA 17033

5. Independent Regulatory Review Commission

Definitions

Comment #1: The definition of *Maximum Residual Disinfectant Level* (MRDL) includes the phrase "...unacceptable possibility of adverse health effects." What is an unacceptable possibility of adverse health effects? (5)

Response #1: The language in question is contained in the federal definition of *MRDL* at 40 CFR § 141.2. The "...unacceptable possibility of adverse health effects" is reflected in the actual values of the prescribed MRDLs as set forth in 40 CFR § 141.65 and proposed for incorporation in § 109.202(f).

State MCLs, MRDLs and Treatment Technique Requirements

Comment #2: Under § 109.202(g)(2)(ii)(F), an exemption from the required TOC monitoring and subsequent compliance with the TOC reduction requirements can be met if "The system's finished water SUVA, measured in accordance with Subchapter C, is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average." The Department should define the term "finished water" for compliance purposes. Finished water can mean combined filter effluent prior to any post chemical feeds, combined filter effluent after post chemical feeds, or at the entry point to the distribution system. Clarification is needed on the interpretation of this requirement. (4)

Response #2: Recent discussions with the United States Environmental Protection Agency (EPA) have revealed that the "finished water SUVA" sample, as required by 40 CFR § 141.135(a)(2)(vi), must be taken prior to the addition of any disinfectants or oxidants. The Department has revised § 109.202(g) to omit paragraph (2) in its entirety. The proposed language in § 109.202(g)(1) adequately incorporates by reference the treatment technique in 40 CFR § 141.135.

Comment #3: In § 109.202(a)(3), public water systems installing granular activated carbon or membrane technologies "...may apply to the Department for an extension of up to 24 months past the applicable compliance date specified in the Federal regulations, but not beyond December 31, 2003." How will a public water system apply for an extension, and what criteria will be used in determining whether or not to grant an extension? (5)

Response #3: Public water systems will apply for compliance date extensions through the appropriate Department regional office. The water system will need to propose a schedule for compliance and demonstrate to the Department's satisfaction that the appropriate technology is being installed for the appropriate purpose. In accordance with 40 CFR § 141.64(b)(2), the

Department must set a schedule for compliance, including any interim measures that the system must take. The Department will use both a permit amendment for the construction or installation of the technology and a consent order and agreement to set the compliance schedule on a case-by-case basis.

Comment #4: In § 109.202(a)(3), a typographical error exists in the first sentence. It appears that the phrase "...in the Federal regulations. but not beyond ...." should read "...in the Federal regulations, but not beyond....". (5)

Response #4: The Department agrees and has made the suggested revision.

Comment #5: Regarding the enhanced coagulation treatment technique in § 109.202(g)(1), it is unclear in the referenced federal language of 40 CFR § 141.135 as to how a water system is to calculate the percent TOC reduction if the downstream TOC sample is higher than the source water TOC sample. If such a scenario were to occur, it is recommended that a reduction of 0% be used for the month instead of the actual negative percent removal achieved by actual calculation. (4)

Response #5: Recent discussions with EPA have revealed that if the downstream TOC sample is higher than the source TOC sample, then the resulting negative percent removal is to be used in the subsequent compliance determination. This issue will be addressed through Department-issued guidance and/or policy, which is currently being developed. In the interim, federal guidance is available.

Comment #6: The first sentence in § 109.202(g)(2)(ii)(C) is lengthy. For clarity, this sentence should be broken into shorter sentences. A typographical error also exists in the second and third sentences. It appears that the second and third sentences should be joined with a comma to form one sentence. (5)

Response #6: As stated above in Response #2, the Department has revised § 109.202(g) to omit paragraph (2).

<u>General Monitoring Requirements</u>

Comment #7: In § 109.301(12)(i)(A)(I)(-a-), it should be noted that the TTHM and HAA5 sample sites should be representative of the entire distribution system. (1,5)

Response #7: The Department agrees and has made the suggested revision.

Comment #8: In § 109.301(12)(i)(B)(I), items (-a-) through (-c-) state "Systems on reduced monitoring are not required to monitor source water TOC." These statements should be removed. Although systems do not have to meet a particular TOC level to remain on reduced monitoring for TTHM and HAA5, they would still need to monitor for source water TOC if they are a conventional filtration plant under the DBP precursor treatment technique. Therefore, they would not be exempt from source water TOC monitoring. (1,5)

Response #8: The Department agrees and has made the suggested revision.

Comment #9: Under § 109.301(12)(iv)(A), "Systems shall take monthly samples of the source water alkalinity, the source water TOC and the combined filter TOC for each treatment plant that utilizes conventional filtration." If a plant does not have a combined filter effluent line, it will be unsure as to where the "treated" TOC sample should be taken for the determination of TOC reductions required by the Rule. (4,5)

Response #9: Recent discussions with EPA have revealed that the "treated" TOC sample can be taken anywhere between the sedimentation effluent and the entry point to the distribution system. Therefore, the Department has revised the language in § 109.301(12)(iv)(A) to reflect these allowable sample locations. In addition, a monitoring plan shall be submitted to the Department for review under § 109.701(e).

Comment #10: In § 109.301(13)(i), the word "samples" should be changed to "sampled." (1)

Response #10: The Department agrees and has made the suggested revision.

Public Notification

Comment #11: The EPA recommends that the Department not adopt the provision of the Federal rule relating to the total trihalomethane (TTHM) health effects language required to be included in Consumer Confidence Reports (CCR) (as per 40 CFR § 141.154(e)). The Department proposed to include this in § 109.403(d). Adopting only one provision of the CCR rule will be confusing to water systems since the Department has not yet adopted all of the CCR. It is acceptable to EPA for the Department to adopt public notification (PN) provisions which are necessary to address revisions to

the Disinfectants and Disinfection Byproducts Rule (D/DBPR), without adopting the entire Federal PN rule at this time. EPA understands that the Department will adopt the Federal PN rule by August 2002. (1,5)

Response #11: The Department agrees and has omitted the proposed language in § 109.403(d) as per EPA's suggestion.

Comment #12: In § 109.403(d), the citation is incorrect as a result of the minor June 30, 2000 corrections to the Federal PN rule. The Appendices to the Federal CCR rule were merged into Appendix A and the paragraph numbering was removed. (1)

Response #12: The Department agrees and has omitted the proposed language in § 109.403(d).

Reporting and Recordkeeping

Comment #13: In § 109.701(a)(8), the following reporting requirements for disinfectant residuals need to be included:
(a) For chlorine dioxide, systems must also report whether the MRDL was exceeded and whether it was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.
(b) For chlorine and chloramines, systems must also report the number of samples and whether the MRDL was exceeded. (1,5)

Response #13: The Department agrees and has made the suggested revision.

Comment #14: In § 109.701(a)(9)(ii)(A), the words "entry point" should be removed. Systems have to report the number of total samples, not just entry point samples. (1,5)

Response #14: The Department agrees and has made the suggested revision.

Bottled Water

Comment #15: It should be clarified as to whether the entire proposed D/DBPR applies to bottled water systems or if only the section on bromate monitoring in § 109.1003(a)(1)(viii) applies to bottled water systems. Monitoring for disinfection byproducts (DBPs) other than bromate is not applicable to bottled water since bottled water companies do not typically use chlorine as a residual disinfectant in their product water. It should be clarified what DBPs should be monitored and at what frequencies for bottled water

companies. For the sake of clarity, the proposed D/DBPR should consolidate specific monitoring requirements and standards for bottled water in Subchapter J. (2,3,5)

Response #15: The proposed D/DBPR applies to bottled water systems. The Department feels that this is adequately communicated in the provisions of § 109.1002(a) and § 109.1003(a), as well as by the definitions of *Public Water System* and *Bottled Water System* in § 109.1. However, if a bottled water system does not use chlorine-based chemicals and does not use a source that has been treated with chlorine-based chemicals, then that system will not need to comply with the monitoring requirements for TTHM and HAA5.

The Department feels that the DBP monitoring provisions are not adequately communicated in § 109.1003(a). Therefore, the Department has revised the proposed language in § 109.1003(a)(1) to clarify these requirements.

Comment #16: Section 109.1003(a) of the proposed D/DBPR states that "Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall monitor for compliance with the MCLs and MRDLs in accordance with § 109.301 (relating to general monitoring requirements)....". The definition for maximum residual disinfectant level (MRDL) proposed in § 109.1 is not applicable to bottled waters because they are not obtained at the consumer's tap. Because of the protection afforded by the sealed bottle (as opposed to the need for a residual disinfectant throughout an underground municipal water distribution system), there is no need to mandate a residual disinfectant – ozone, chlorine, or otherwise – in bottled water. This comment also applies to § 109.202(f)(2), which adopts the National Primary Drinking Water Regulations MRDLs; and § 109.301(2)(i)(D), which requires continuous monitoring of MRDLs with a provision for testing every 4 hours in lieu of continuous monitoring. (2,3)

Response #16: Although an adequately sealed bottle provides a high level of sustained microbial protection, the MRDL provisions of the D/DBPR nevertheless apply to bottled water systems. The monitoring provisions in § 109.1003(c)(1) specify that MCL and MRDL compliance sampling for bottled water systems shall take place at the entry point. Subparagraph (i) of § 109.1003(c)(1) defines the entry point for bottled water systems to mean each finished bottled water product. The Department has revised the proposed definition of *MRDL* to clarify that the "consumer's tap" will be the entry point for bottled, vended, retail, and bulk hauling water systems.

Comment #17: Section 109.202(a)(3) provides for a 24-month extension past the applicable compliance date specified in the Federal regulations, but not beyond December 31, 2003. This proposed extension period would also apply to public water systems required to comply with the proposed MCL for bromate. It should be clarified that this extension applies to bottled water companies who are investigating and installing new technologies to comply with the proposed bromate MCL. (2,3)

Response #17: The Department agrees that the extension period is available to bottled water systems but feels that this is adequately communicated in the provisions of § 109.1002(a), as well as by the definitions of *Public Water System* and *Bottled Water System* in § 109.1.

Comment #18: Section 109.1003(d)(3) states that "if a check sample is total coliform-positive, the system shall be deemed to have violated the MCL for total coliforms...." Section 109.301(3) (Monitoring requirements for coliforms) requires that the presence or absence of fecal coliforms or *E. coli* also be determined in routine or check samples. Section 109.1003(d)(3) does not provide detail on how many check samples must be collected when a primary sample is total coliform-positive. In actual situations where public water systems in Pennsylvania and elsewhere in the United States find total coliform-positive primary samples, specific requirements for collection of check samples is provided. For example, a small system may be directed to collect four (4) check samples immediately upon notice of a total coliform-positive sample, followed by increased sampling the next month. The International Bottled Water Association (IBWA) has developed an *Escherichia coli and Total Coliform Standard and Policy*, which uses this check-sample procedure. A similar procedure should exist for responding to total coliform-positive bottled water samples. (2,3)

Response #18: Section 109.1003(d) prescribes the repeat monitoring requirements for bottled water systems. The Department feels that § 109.1003(d)(1)(i) requires bottled water systems to collect three check samples after a routine sample is found to be total coliform-positive. Section 109.1003(d)(3) applies after a routine (i.e., primary) sample and check samples have been taken. The IBWA policy is generally consistent with Department-issued guidance.

Comment #19: Section 109.301(12) (Monitoring requirements for disinfection byproducts and disinfection byproduct precursors) states that systems using groundwater sources shall begin monitoring by January 1, 2004. It is interpreted that this date also applies to bottled water companies with ground water sources, such as springs and wells. (2,3)

Response #19: This is the Department's intent. The Department has revised § 109.1003 to clarify this requirement.

Comment #20: It is not clear about locations of entry points in bottled water plants that are sampled for compliance with this and other regulations. Sections 109.701(a)(8) (Reporting requirements for disinfectant residuals) and 109.1003(a)(1)(viii)(A) do not clearly indicate where that entry point is located. This issue should be clarified so that the proper numbers of samples may be collected. It is recommend that entry points be designated as each *product type* bottled at each bottling plant as it complies with the bottled water routine monitoring requirements of the Food and Drug Administration (FDA). (2,3)

Response #20: "Entry point" for bottled water systems is specified within § 109.1003(c)(1). "Entry point" is further defined for bottled water systems in § 109.1003(c)(1)(i) as being *each finished bottled water product.*

Comment #21: TTHM monitoring for systems using chlorine-based disinfectants is performed quarterly. For consistency, it is recommended that the same DBP monitoring schedule be applied to the bromate monitoring in § 109.1003(a)(1)(viii)(A), which currently proposes that one sample per month be collected at each entry point. If adopted, the reduced monitoring proposed in § 109.1003(a)(1)(viii)(B) should be changed from quarterly to *annually*. (2,3)

Response #21: The proposed bromate monitoring provisions in § 109.1003(a)(1)(viii)(B) are consistent with the requirements for other public water systems and with the federal D/DBPR in 40 CFR § 141.132(b)(3)(ii). As stated above in Response #15, the Department has revised the proposed language in § 109.1003(a)(1). Therefore, the bromate monitoring provisions are reflected in a new § 109.1003(a)(1)(x).

Comment #22: The proposed rule does not clearly address the basis for determining compliance. Monitoring frequencies and reporting requirements are outlined in the proposed rule, but it should be clarified as to whether compliance is based on single-sample results or a running average. It is recommended that a compliance schedule be developed that is similar to that applicable to TTHMs (i.e., a running annual average calculated quarterly using sample results obtained each quarter). (2,3)

Response #22: The Department feels that compliance determinations are adequately communicated in the provisions of § 109.1002(a) and § 109.1003(a) by way of reference to § 109.202 and § 109.301, respectively, which reference the federal regulations.

Comment #23: The system operational requirements described in section 109.1009(c) state that "A disinfectant residual acceptable to the Department shall be maintained at the entry point of the bottled water… system….". The proposed EPA Groundwater Rule, scheduled to be finalized in November 2000, allows for use of ultraviolet (UV) light as an alternative disinfectant. This provision in the *Federal Register* (Vol. 65; May 10, 2000; pg. 30271; § 141.404(C)(2)) states "Ground water systems using UV disinfection must continuously monitor for and maintain the State-prescribed UV irradiance level every day the ground water system serves water to the public." The EPA also considered the fact that UV would not provide a disinfection residual and deemed this acceptable, ruling that "As long as the system attains IT values necessary for 4-log virus inactivation, the system meets the treatment technique requirement." (*Federal Register*, Vol. 65; May 10, 2000; pg. 30235; paragraph E. Treatment Technique for Systems With Fecally Contaminated Source Water or Uncorrected Significant Deficiencies; (1)(b)(iii) Disinfection).

In a similar manner, other alternative technologies provide an acceptable level of public health protection without the presence of a chemical disinfectant residual. Because of the protection afforded by the sealed bottle (as opposed to the need for a residual disinfectant throughout an underground municipal water distribution system), there is no need to mandate a residual disinfectant – ozone, chlorine, or otherwise – in bottled water. It is urged that guidance be sought from the FDA on the availability of alternative treatment techniques and their acceptability for the production of bottled water. (2,3)

Response #23: Although an adequately sealed bottle provides a high level of sustained microbial protection, the MRDL provisions of the D/DBPR still apply to bottled water systems. While the MRDL sets a maximum disinfectant level, the Department determines the minimum acceptable residual on a case-by-case basis as per the provisions of § 109.1009(c).

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py below is hereby approved as to and legality. Attorney General (DEPUTY ATTORNEY GENERAL) DATE OF APPROVAL heck if applicable opy not approved. Objections tached.	Copy below is hereby certified to be a true and correct copy of a document issued, prescribed or promulgated by: DEPARTMENT OF ENVIRONMENTAL PROTECTION ENVIRONMENTAL QUALITY BOARD (AGENCY) DOCUMENT/FISCAL NOTE NO. 7-359 DATE OF ADOPTION: BY: David E. Hess TITLE: DAVID E. HESS, ACTING SECRETARY (EXECUTIVE OFFICER, CHAIRMAN OR SECRETARY)	Copy below is hereby approved as to form and legality. Executive or Independent Agencies. BY: [signature] 4/20/01 DATE OF APPROVAL (Deputy General Counsel) (~~Chief Counsel, Independent Agency~~) (Strike inapplicable title) ☐ Check if applicable. No Attorney General approval or objection within 30 days after submission.

ORDER ADOPTING REGULATIONS

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

25 Pa. Code, Chapter 109

Disinfectants and Disinfection Byproducts Rule
(D/DBPR)

Notice of Final Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code, Chapter 109)
(Safe Drinking Water)
(Disinfectants and Disinfection Byproducts Rule)

Preamble

The Environmental Quality Board (Board) by this order amends 25 Pa. Code, Chapter 109 (relating to Safe Drinking Water). The amendments will establish Maximum Residual Disinfectant Levels (MRDLs) and monitoring requirements for free chlorine, combined chlorine, and chlorine dioxide. Maximum Contaminant Levels (MCLs) and monitoring requirements will be established for five haloacetic acids, chlorite, and bromate. The MCL for total trihalomethanes will be lowered. The amendments will also establish pre-filtration treatment techniques for public water systems that use conventional filtration in order to reduce source water Total Organic Carbon (TOC), which serves as a precursor to disinfection byproducts.

This order was adopted by the Board at its meeting of April 17, 2001.

A. Effective Date

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as final rulemaking.

B. Contact Persons

For further information, contact Jeffrey A. Gordon, Acting Chief, Division of Drinking Water Management, P.O. Box 8467, Rachel Carson State Office Building, Harrisburg, PA 17105-8467, (717) 772-4018 or Pamela Bishop, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users). This proposal is available electronically through the DEP Web site (http://www.dep.state.pa.us).

C. Statutory Authority

The final rulemaking is being made under the authority of Section 4 of the Pennsylvania Safe Drinking Water Act (35 P.S. § 721.4), which grants the Board the authority to adopt rules and regulations governing the provision of drinking water to the public, and Sections 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§ 510-7 and 510-20).

D. Background of the Amendments

The public health benefits of disinfection are significant and well-recognized. However, these very disinfection practices pose health risks of their own. Although disinfectants such as chlorine, hypochlorites, and chlorine dioxide are effective in controlling many harmful microorganisms, they react with organic and inorganic matter in the water to form disinfection byproducts (DBPs), which pose health risks at certain levels.

The first DBPs discovered in public drinking water were halogenated methanes in 1974. As a result, the United States Environmental Protection Agency (EPA) promulgated an MCL for the composite sum of four individual DBP species: chloroform, bromodichloromethane, dibromochloromethane, and bromoform. This composite sum was termed "Total Trihalomethanes" (TTHMs) and had an MCL of 0.1 mg/L which was applied only to community water systems serving at least 10,000 people. This MCL is currently in effect today.

Since the discovery of TTHMs in drinking water in 1974, other DBPs have been identified and studied for their health effects. Many of these studies have shown DBPs to be carcinogenic and/or to cause reproductive or developmental effects in laboratory animals. Studies have also shown that high levels of the disinfectants themselves may cause health problems over long periods of time, including damage to both the blood and the kidneys. While many of these studies have been conducted at high doses, the weight of the evidence indicates that DBPs present a potential public health problem that must be addressed.

In 1992, the EPA initiated a rulemaking process to address public health concerns associated with disinfectants, DBPs, and microbial pathogens. As part of this rulemaking process, EPA established a Regulatory Negotiation (Reg/Neg) Committee which included representatives of state and local health and regulatory agencies, public water systems, elected officials, consumer groups and environmental groups.

EPA's most significant concern in developing regulations for disinfectants and DBPs was the need to ensure that adequate treatment be maintained for controlling risks from microbial pathogens. One of the major goals addressed in the rulemaking process was to develop an approach that would reduce the level of exposure from disinfectants and DBPs without undermining the control of microbial pathogens. The intention was to ensure that drinking water is microbiologically safe at the limits set for disinfectants and DBPs and that these chemicals do not pose an unacceptable health risk at these limits. Thus, the Reg/Neg Committee also considered a range of microbial issues and agreed that EPA should also propose a companion microbial rule, the *Interim Enhanced Surface Water Treatment Rule* (IESWTR).

Following months of intensive discussions and technical analysis, the Reg/Neg Committee recommended the development of three sets of rules: a two-stage rule to address disinfectants and DBPs (D/DBPs), the IESWTR, and an *Information Collection Rule* (ICR). The approach used in developing these proposals considered the constraints of simultaneously treating water to control microbial contaminants, disinfectants, and DBPs. The Reg/Neg Committee agreed that the schedule for the IESWTR should be linked to the schedule of the first stage of the D/DBP rule to assure simultaneous compliance and a balanced risk-risk based

implementation. The Reg/Neg Committee also agreed that additional information on health risk, occurrence, treatment technologies, and analytical methods needed to be developed in order to better understand the risk-risk tradeoff, and how to accomplish an overall reduction in health risks to both pathogens and D/DBPs. Finally the Reg/Neg Committee agreed that to develop a reasonable set of rules and to understand more fully the limitations of the current federal *Surface Water Treatment Rule*, additional field data were critical. Thus, a key component of the regulation negotiation agreement was the promulgation of the ICR.

The federal *Disinfectants and Disinfection Byproducts Rule* (D/DBPR) (40 CFR Parts 9, 141, and 142), which was promulgated on December 16, 1998, was developed based on the outcome of this rulemaking process, as well as a wide range of technical comments from stakeholders and members of the public. The D/DBPR is intended to regulate treatment practices at public water systems in order to eliminate or minimize disinfectant levels and disinfection byproducts that may cause harmful health effects. The D/DBPR is applicable to all community and nontransient noncommunity water systems that use a chemical disinfectant or oxidant, as well as to all transient noncommunity water systems that use chlorine dioxide. The D/DBPR will establish MRDLs for free chlorine, combined chlorine, and chlorine dioxide. MCLs will also be established for five haloacetic acids, chlorite, and bromate. The current MCL for TTHMs will be lowered from 0.1 mg/L to 0.08 mg/L and will be applied to all community and nontransient noncommunity water systems, regardless of the population that is served. The D/DBPR will also regulate pre-filtration treatment techniques for public water systems that use conventional filtration in order to reduce source water Total Organic Carbon (TOC), which serves as a precursor to disinfection byproducts.

On January 16, 2001, EPA promulgated corrective amendments to both the D/DBPR and IESWTR. These corrective amendments are minor in nature (e.g., change in compliance date from 12/17/01 to 1/1/02) and are reflected in this final rulemaking.

Other federal rules will be promulgated in the future as a follow-up to both the D/DBPR and the IESWTR. These rules will be the *Stage 2 D/DBPR*, the *Long Term 1 Enhanced Surface Water Treatment Rule* (LT1), the *Long Term 2 Enhanced Surface Water Treatment Rule* (LT2), and the *Filter Backwash Rule* (FBR). The LT1 and FBR rules are expected in 2001. The LT2 and Stage 2 D/DBPR rules are expected in 2002.

The Board proposes to incorporate the provisions of both the federal D/DBPR and the January 16, 2001 federal corrective amendments into the Pennsylvania Safe Drinking Water Regulations (25 Pa. Code Chapter 109) in order to obtain primary enforcement responsibility (aka "primacy") for this rule.

The proposed regulation was approved by the Board on July 18, 2000. The proposed regulation was published in the *Pennsylvania Bulletin* on September 2, 2000. The 30-day public comment period concluded on October 2, 2000. No public meetings or hearings were held on the proposed regulation.

The Technical Assistance Center Advisory Board (TAC) and the Water Resources Advisory Committee (WRAC) were each briefed on the comments received during the public comment period. The WRAC reviewed and discussed the final regulation on January 10, 2001.

The WRAC commented that the 30-day approval requirement in § 109.701(e) for approving monitoring plans might be unrealistic. The WRAC suggested that the 30-day requirement be revised to either 60 or 90 days, or that the approval requirement be removed altogether. After discussion with the WRAC, the Department decided to remove the approval requirement. The WRAC then approved the final regulation for recommendation to the Board. The TAC reviewed and discussed the final regulation on January 25, 2001. The TAC had no comments and approved the final regulation for recommendation to the Board.

The federal Safe Drinking Water Act (42 U.S.C.A. § 300g-2(a)) requires that primary enforcement responsibility states, such as Pennsylvania, adopt EPA regulations no later than two years after EPA promulgation. EPA may approve an extension of up to two years for states that: 1) lack legislative or regulatory authority to enforce the new regulations, or 2) lack program capability to implement the new regulations, or 3) are adopting two or more EPA regulations at the same time.

On November 28, 2000, the Department submitted a primacy extension request to the EPA to adopt regulations implementing both the federal IESWTR and the federal D/DBPR by no later than August 31, 2001. It is expected that EPA will grant the extension because the state is adopting two or more EPA regulations at the same time, which is one of the criteria specified above for the EPA to grant an extension. If EPA grants the August 31, 2001 extension, then failure to adopt the D/DBPR by this extension date may result in Pennsylvania losing its primary enforcement responsibility.

E. Summary of Comments and Responses on the Proposed Rulemaking and Changes to the Proposed Rulemaking

The amendments reflect, and are no more stringent than, both the new federal D/DBPR requirements and the January 16, 2001 federal corrective amendments.

§ 109.1 *Definitions.*

A commentator asked what an "unacceptable possibility of adverse health effects" is, as stated in the definition of *MRDL*. The "unacceptable possibility of adverse health effects" is reflected by the actual value of the MRDL. This value is derived from the appropriate risk assessment analysis that determines the "unacceptable" level.

Representatives of the bottled water industry expressed concern that a "consumer's tap," as stated in the definition of *MRDL*, does not exist at a bottled water plant. The Board has decided to amend the definition of *MRDL* to clarify that, for bottled, vended, retail, and bulk hauling water systems, the "consumer's tap" shall mean the entry point.

The definition of *Sedimentation* was amended to be consistent with the federal definition of *Sedimentation* in 40 CFR § 141.2.

The definition of *TTHM* was added because the term is used repeatedly throughout the text of regulation. The TTHM definition is consistent with the federal definition in 40 CFR § 141.2.

§ 109.202(a) *Primary MCLs*

Regarding the compliance date extension offered in § 109.202(a)(3), a commentator questioned how a water system would apply for such an extension and what criteria would the Department use in granting this extension. Water systems are to apply for compliance date extensions through the appropriate Department regional office. The water system will need to propose a schedule for compliance and demonstrate to the Department's satisfaction that the appropriate technology is being installed for the appropriate purpose. In accordance with the federal requirements at 40 CFR § 141.64(b)(2), the Department must set a schedule for compliance, including any interim measures that the system must take. The Department will use both a permit amendment for the construction or installation of the technology and a consent order and agreement to set the compliance schedule on a case-by-case basis.

Representatives of the bottled water industry requested that § 109.202(a)(3) include language clarifying that compliance date extensions are also available to bottled water systems. The Board declined to make this amendment because it feels that the availability of compliance date extensions to bottled water systems is adequately conveyed by way of reference through § 109.1, § 109.1002(a), and § 109.1003(a), wherein bottled water systems are considered to be public water systems and are subject to the same requirements as public water systems.

Section 109.202(a)(3) was amended to correct a typographical error.

§ 109.202(g) *Treatment technique requirements for disinfection byproduct precursors.*

Regarding the enhanced coagulation requirements referenced in § 109.202(g)(1), a commentator questioned if negative TOC percent removal values were to be recorded as zero or as the actual negative value. The correct procedure is to record the actual negative value.

A commentator requested clarification on where the "finished water" sampling, as specified in § 109.202(g)(2)(ii)(F), is to be conducted. This sampling is to be conducted prior to the addition of any disinfectants or oxidants.

The Board has decided to delete § 109.202(g)(2). The Board feels that the language in this paragraph concerning alternative compliance criteria was potentially misleading to water systems with respect to compliance strategies. In addition, the Board feels that some of the sampling points that were specified in § 109.202(g)(2) could be potentially confusing to water systems. The Board feels that this information would be better presented by way of reference to the federal regulations in 40 CFR § 141.135, as well as in future guidance.

The deletion of § 109.202(g)(2) removes the "(1)" from § 109.202(g)(1) so that § 109.202(g) now simply contains a one-paragraph body.

§ 109.301 *General monitoring requirements.*

Representatives of the bottled water industry have interpreted that the January 1, 2004 D/DBPR compliance date stated in § 109.301(12) for systems using ground water sources also applies to bottled water systems that use ground water sources. This interpretation is correct.

Section 109.301(12)(i)(A)(I)(-a-) was amended to require quarterly sampling of TTHMs and haloacetic acids as opposed to monthly sampling. This section was also amended at EPA's request to clarify that the non-maximum residence time samples need to collectively be representative of the entire distribution system. Both of these revisions are consistent with the federal regulations in 40 CFR § 141.132(b)(1)(i).

Sections 109.301(12)(i)(B)(I)(-a-) through (-c-) were amended at EPA's request to delete the language "Systems on reduced monitoring are not required to monitor source water TOC." This language was inconsistent with federal requirements.

A commentator requested clarification on where the treated TOC sampling, as specified in §§ 109.301(12)(iv)(A) and (B), is to be conducted. The treated TOC samples may be taken at any location after sedimentation treatment. The combined filter effluent is the preferable location. Entry point sampling must first receive Department approval. Sections 109.301(12)(iv)(A) and (B) were amended to clarify where treated TOC samples may be taken. These new locations reflect recent D/DBPR implementation decisions made by the EPA.

Section 109.301(13)(i) was amended to correct a typographical error.

§ 109.403(d) *Description and content of notice.*

The Board has deleted this proposed subsection. The EPA had informed the Department that the 40 CFR Subpart O references in this subsection had changed since the promulgation of the federal D/DBPR. The EPA also informed the Department that this federal requirement may be included in the Department's future Consumer Confidence Rule. The EPA stated that including this language in a future rulemaking would not jeopardize the Department's efforts to obtain primary enforcement responsibility for the D/DBPR.

§ 109.701(a) *Reporting requirements for public water systems.*

Section 109.701(a)(8) was amended at EPA's request to include minor EPA reporting requirements that were omitted in the proposed regulation. The reporting requirements in this section are now consistent with the federal requirements.

Section 109.701(a)(9)(ii)(A) was amended at EPA's request to delete the "entry point" specification of sample results that are to be reported. The amended language is now consistent with the federal requirements.

§ 109.701(e) *Monitoring plans for disinfectants, disinfection byproducts, and disinfection byproduct precursors.*

This subsection was amended to specify a submittal deadline for monitoring plans of 30 days prior to the established reporting deadline. This submittal deadline will provide both the Department and the water system time to discuss any questions or suggestions regarding the monitoring plan.

Section 109.701(e)(2) was amended to delete references to Department approval of the monitoring plan. The Department will not be approving monitoring plans. Approval of the monitoring plan is not required by the federal D/DBPR.

§ 109.1003(a) *General monitoring requirements.*

Representatives of the bottled water industry requested clarification as to where the "entry point," as specified for monitoring in § 109.1003(a)(1), is for bottled water systems. They further recommended that a "product type" be designated as the "entry point" for bottling plants in order to be consistent with federal Food and Drug Administration requirements. The Board declined to make this amendment because it feels that the entry point for bottled water systems is adequately defined in § 109.1003(c)(1) as being "each finished bottled water product."

Representatives of the bottled water industry questioned whether the entire D/DBPR is applicable to bottled water systems, or just the bromate monitoring provisions in § 109.1003(a)(1)(viii). They asserted that the requirements for chlorine-based DBPs should not apply to bottled water systems since chlorine is typically not used by bottled water systems. The Board has amended the monitoring section. If a bottled water system does not use chlorine-based chemicals and does not use a source that has been treated with chlorine-based chemicals, then that system will not need to comply with the monitoring requirements for TTHM and HAA5. Otherwise, all D/DBPR provisions will still apply to bottled water systems.

Representatives of the bottled water industry requested that routine monitoring for bromate be quarterly rather than monthly, as stated in § 109.1003(a)(1)(viii)(A). They also requested that reduced monitoring for bromate be annually rather than quarterly, as stated in § 109.1003(a)(1)(viii)(B). The Board declined to make this amendment because the bromate monitoring requirements are consistent with the federal D/DBPR requirements.

The Board has decided to amend § 109.1003(a)(1) to include the monitoring requirements for TTHMs, haloacetic acids, and chlorite in addition to the originally proposed bromate requirements. This will clarify the DBP monitoring requirements for bottled, vended, retail, and bulk hauling water systems.

Representatives of the bottled water industry requested that D/DBPR compliance determination procedures be clarified in Chapter 109. The Board declined to make this amendment because it feels that the procedures for determining compliance for the various MCLs and MRDLs are adequately conveyed in § 109.1002(a) and § 109.1003(a) by way of reference to § 109.202 and § 109.301, respectively, which reference the federal regulations.

§ 109.1003(c) *Sampling requirements.*

Section 109.1003(c)(1) was amended to correct a typographical error.

§ 109.1003(d) *Repeat monitoring for microbiological contaminants.*

Representatives of the bottled water industry requested that a more detailed check-sample procedure be developed for total-coliform positive samples for inclusion into § 109.1003(d)(3). The Board declined to make this amendment because it feels that an adequate check-sample procedure is required in § 109.1003(d)(1)(i).

§ 109.1009(c) *Disinfectant residual requirements.*

Representatives of the bottled water industry asserted that with the ongoing development of alternative disinfection technologies, such as ultraviolet light, and with the proper sealing of bottled water products, there is no need to mandate residual disinfectant levels in bottled water products. The MRDL requirements of the D/DBPR apply to bottled water systems if chlorine, chloramination, or chlorine dioxide is used. If a bottled water system uses only ozone, then that system will not be subject to any MRDL requirements. While the MRDL sets a maximum disinfectant level, the Department determines the minimum acceptable residual on a case-by-case basis as per the provisions of § 109.1009(c).

F. Benefits, Costs and Compliance

Executive Order 1996-1 requires a cost/benefit analysis of the final regulation.

Benefits

The public health benefits of disinfection practices are significant and well-recognized. Disinfection, however, poses its own health risks. The amendments will implement standards that will either minimize or eliminate harmful disinfectant levels and disinfection byproducts in public water systems.

The amendments will affect 2,565 public water systems that serve a total population of over 10.4 million Pennsylvanians. These 10.4 million people will benefit from a reduction in health risks associated with disinfection practices, such as bladder cancer and kidney damage.

The EPA has estimated that the nation may realize a total annual benefit of up to $4 billion as a result of avoiding up to 2,232 cases of bladder cancer per year. In Pennsylvania, this translates into a total annual benefit of up to $175 million in avoiding up to 98 cases of bladder cancer per year.

Compliance Costs

The EPA has estimated that a total annual cost of almost $684 million will be borne by the regulated community, nationwide, as a result of this rule. It is estimated that Pennsylvania water systems will bear over $23 million of this total annual cost.

The $23 million estimate will include up-front capital costs associated with process modifications. These process modifications may involve the dose or type of disinfectant chemical, the process location(s) of disinfectant addition, technologies or treatment techniques that reduce source water TOC, technologies or treatment techniques that remove DBPs, and new source development activities.

The $23 million estimate also includes ongoing costs associated with operations and maintenance. These costs will include maintenance activities of any new technologies or sources that are installed because of this rule. These costs will also include the routine compliance expenses of monitoring, reporting, and recordkeeping.

Compliance Assistance Plan

The Safe Drinking Water Program utilizes the Commonwealth's PENNVEST Program in order to offer financial assistance to eligible public water systems. This assistance is in the form of a low-interest loan, with some augmenting grant funds for hardship cases. Eligibility is based upon factors such as public health impact, compliance necessity, and project/operational affordability.

The Safe Drinking Water Program has established a network of regional and central office training staff that is responsive to identifiable training needs. The target audience in need of training may be either program staff or the regulated community.

In addition to this network of training staff, the Bureau of Water Supply and Wastewater Management has a division dedicated to providing both training and outreach support services to public water system operators. The DEP Internet site also provides a link to the *Drinking Water & Wastewater Treatment System Operator Information Center* Internet site, which provides a bulletin board of timely, useful information for treatment plant operators.

Paperwork Requirements

The amendments will require that water systems comply with two to four new contaminant standards, as well as with one to three new disinfectant residual standards. In order to comply with these standards, the water system will need to monitor and report these contaminants and disinfectant residuals. Water systems which treat with conventional filtration will also need to monitor and report total organic carbon, both in the source water and in the treated water.

It is anticipated that this additional monitoring and reporting should be facilitated by DEP's current data reporting forms and that little, if any, additional data forms or paperwork will be necessary.

G. Sunset Review

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

H. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on August 8, 2000 the Department submitted a copy of the notice of proposed rulemaking, published at 30 Pa.B. 4596, September 2, 2000 to the Independent Regulatory Review Commission (IRRC) and the Chairpersons of the House and Senate Environmental Resources and Energy Committees for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC and the Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing these final-form regulations, the Department has considered all comments from IRRC, the Committees and the public.

Under section 5.1(d) of the Regulatory Review Act (71 P.S. § 745.5a(d)), on _____, these final-form regulations were deemed approved by the House and Senate Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on _____ and approved the final-form regulations.

I. Findings of the Board

The Board finds that:

(1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. §§ 1201 and 1202) and regulations promulgated thereunder at *1 Pennsylvania Code* §§ 7.1 and 7.2.

(2) A public comment period was provided as required by law, and all comments were considered.

(3) These regulations do not enlarge the purpose of the proposal published at 30 *Pennsylvania Bulletin* 4596 (September 2, 2000).

(4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.

J. Order of the Board

The Board, acting under the authorizing statutes, orders that:

(a) The regulations of the Department of Environmental Protection, *25 Pennsylvania Code*, Chapter 109, are amended to read as set forth in Annex A.

(b) The Chairman of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairman of the Board shall submit this order and Annex A to the Independent Regulatory Review Commission and the House and Senate Environmental Resources and Energy Committees as required by the Regulatory Review Act.

(d) The Chairman of the Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau, as required by law.

(e) This order shall take effect immediately.

BY:

DAVID E. HESS
Chairman
Environmental Quality Board

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

Subpart C. PROTECTION OF NATURAL RESOURCES

ARTICLE II. WATER RESOURCES

CHAPTER 109. SAFE DRINKING WATER

Subchapter A. GENERAL PROVISIONS

§ 109.1. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Act—The Pennsylvania Safe Drinking Water Act (35 P. S. § § 721.1—721.17).

Administrator—The Administrator of the EPA.

ANSI—The American National Standards Institute, Inc. of New York, New York.

BAT—Best Available Technology—The best technology, treatment techniques or other means which the Administrator finds are available for achieving compliance with maximum contaminant levels.

Bottled water system—A public water system which provides water for bottling in sealed

bottles or other sealed containers. The term includes, but is not limited to, the sources of water and treatment, storage, bottling, manufacturing and distribution facilities. The term does not include a public water system which provides only a source of water supply for a bottled water system and excludes an entity providing only transportation, distribution or sale of bottled water in sealed bottles or other sealed containers.

Bulk water hauling system—A public water system which provides water piped into a carrier vehicle and withdrawn by a similar means into the user's storage facility or vessel. The term includes, but is not limited to, the sources of water, treatment, storage or distribution facilities. The term does not include a public water system which provides only a source of water supply for a bulk water hauling system.

CT—The product of residual disinfectant concentration (C) measured in mg/l in a representative sample of water prior to the first customer, and disinfectant contact time (T); that is, "C" x "T." If disinfectants are applied at more than one point prior to the first customer, the CT is determined for each disinfectant sequence prior to the first customer to determine the total percent inactivation achieved by disinfection prior to the first customer. In determining the total percent inactivation, the residual disinfectant concentration of each disinfection sequence and corresponding contact time before subsequent disinfection application points shall be determined.

Coagulation—A process using coagulant chemicals and mixing by which colloidal and suspended material are destabilized and agglomerated into settleable or filterable flocs, or both.

Collection—The parts of a public water system occurring prior to treatment, including source, transmission facilities and pretreatment storage facilities.

Community water system—A public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Compliance cycle—A 9-year calendar year cycle during which public water suppliers shall monitor for contaminants. The first compliance cycle begins January 1, 1993, and ends December 31, 2001.

Compliance period—A 3-year calendar year period within a compliance cycle. Each compliance cycle is made up of three 3-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993, through December 31, 1995.

Confluent growth—Bacterial growth, with or without sheen, covering the entire membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

Consecutive water system—A public water system which obtains all of its water from another public water system and resells the water to a person, provides treatment to meet a primary MCL or provides drinking water to an interstate carrier. The term does not include bottled water and bulk water systems.

Contaminant—A physical, chemical, biological or radiological substance or matter in water.

Conventional filtration—The series of processes for the purpose of substantial particulate removal consisting of coagulation, flocculation, sedimentation and filtration.

Corrosion inhibitor—A substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

Cross-connection—An arrangement allowing either a direct or indirect connection through which backflow, including backsiphonage, can occur between the drinking water in a public water system and a system containing a source or potential source of contamination, or allowing treated water to be removed from any public water system, used for any purpose or routed through any device or pipes outside the public water system, and returned to the public water system. The term does not include connections to devices totally within the control of one or more public water systems and connections between water mains.

Diatomaceous earth filtration—A process for the purpose of substantial particulate removal in which a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and while the water is filtered by passing through the cake on the septum, additional filter media, known as body feed, is continuously added to the feed water, to maintain the permeability of the filter cake.

Direct filtration—A series of processes for the purpose of substantial particulate removal consisting of coagulation and filtration. The term normally includes flocculation after coagulation, but does not include sedimentation.

Disinfectant contact time—The time in minutes that it takes for water to move from the point of disinfectant application to the point where residual disinfectant concentration is measured. Contact time in pipelines is calculated based on plug flow by dividing the internal volume of the pipeline by the flow rate through that pipeline. Contact time within mixing basins and storage reservoirs is determined by tracer studies or an equivalent demonstration. Guidance for making these determinations appears in the "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources" (U. S. EPA, Office of Drinking Water, Criteria and Standards Division).

Disinfection—A process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents, such as ultraviolet light.

ENHANCED COAGULATION--THE ADDITION OF SUFFICIENT COAGULANT FOR IMPROVED REMOVAL OF DISINFECTION BYPRODUCT PRECURSORS BY CONVENTIONAL FILTRATION TREATMENT.

ENHANCED SOFTENING--THE IMPROVED REMOVAL OF DISINFECTION BYPRODUCT PRECURSORS BY PRECIPITATIVE SOFTENING.

Entry point—A point acceptable to the Department at which finished water representative of each source enters the distribution system.

Environmental acts—The Clean Streams Law (35 P. S. § § 691.1—691.1001), the Air Pollution Control Act (35 P. S. § § 4001—4015), the Radiation Protection Act (35 P. S. § § 7110.101—7110.703), the Surface Mining Conservation and Reclamation Act (52 P. S. § § 1396.1—1396.31), the Noncoal Surface Mining Conservation and Reclamation Act (52 P. S. § § 3301—3326), section 1917-A of The Administrative Code of 1929 (71 P. S. § 510-17), the Dam Safety and Encroachment Act (32 P. S. § § 693.1—693.27), the Solid Waste Management Act (35 P. S. § § 6018.101—6018.1003), the Plumbing System Lead Ban and Notification Act (35 P. S. § § 723.1—723.17) and any other State or Federal statutes relating to environmental protection or to the protection of the public health, safety and welfare.

Facility—A part of a public water system used for collection, treatment, storage or distribution of drinking water.

Federal act—The Safe Drinking Water Act (42 U.S.C.A. § § 300f—300j-10).

Federal regulations—The National Primary Drinking Water Regulations and the National Secondary Drinking Water Regulations.

Filtration—A process for removing particulate matter from water by passage through porous media.

Finished water—Water that has been treated in compliance with the treatment technique requirements established in this chapter by a permitted public water system and is ready for consumption by the public.

First-draw sample—A 1-liter sample of tap water collected in accordance with § 109.1103 (relating to monitoring requirements), that has been standing in plumbing pipes at least 6 hours and is collected without flushing the tap.

Flocculation—A process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable or filterable particles through gentle stirring by hydraulic or mechanical means.

GUDI--GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER--ANY WATER BENEATH THE SURFACE OF THE GROUND WITH THE PRESENCE OF INSECTS OR OTHER MACROORGANISMS, ALGAE, ORGANIC DEBRIS OR LARGE DIAMETER PATHOGENS SUCH AS *GIARDIA LAMBLIA* AND *CRYPTOSPORIDIUM*, OR SIGNIFICANT AND RELATIVELY RAPID SHIFTS IN WATER CHARACTERISTICS SUCH AS TURBIDITY, TEMPERATURE, CONDUCTIVITY OR PH WHICH CLOSELY CORRELATE TO CLIMATOLOGICAL OR SURFACE WATER CONDITIONS. THE TERM DOES NOT INCLUDE FINISHED WATER.

HAA5--HALOACETIC ACIDS (FIVE)--THE SUM OF THE CONCENTRATIONS IN MILLIGRAMS PER LITER OF THE HALOACETIC COMPOUNDS

(MONOCHLOROACETIC ACID, DICHLOROACETIC ACID, TRICHLOROACETIC ACID, MONOBROMOACETIC ACID AND DIBROMOACETIC ACID), ROUNDED TO TWO SIGNIFICANT FIGURES AFTER ADDITION.

IBWA—The International Bottled Water Association, Alexandria, Virginia 22314.

IOC—Inorganic chemical.

Initial compliance period—The first full 3-year compliance period during which a public water supply is required to monitor for a contaminant.

Innovative technology—A method, process or equipment for the treatment of drinking water which is not designated as BAT under EPA regulations and the effectiveness of which has not been commercially demonstrated in the water supply industry.

Lead service line—A service line made of lead which connects a water main to a building inlet and a lead pigtail, gooseneck or other fitting which is connected to the lead line.

MCL—Maximum Contaminant Level—The maximum permissible level of a contaminant in water which is delivered to a user of a public water system, and includes the primary and secondary MCLs established under the Federal act, and MCLs adopted under the act. For MCLs incorporated into this chapter by reference, the term refers to the numerical value and the means of determining compliance with that value and does not refer to the EPA applications to specific types of public water systems or sources.

MRDL--MAXIMUM RESIDUAL DISINFECTANT LEVEL--THE MAXIMUM PERMISSIBLE LEVEL OF A DISINFECTANT ADDED FOR WATER TREATMENT THAT MAY NOT BE EXCEEDED AT THE CONSUMER'S TAP WITHOUT AN UNACCEPTABLE POSSIBILITY OF ADVERSE HEALTH EFFECTS. **THE CONSUMER'S TAP MEANS THE ENTRY POINT FOR BOTTLED WATER AND VENDED WATER SYSTEMS, RETAIL WATER FACILITIES AND BULK WATER HAULING SYSTEMS.**

Method detection limit—The amount of a substance which the EPA has determined to be the minimum concentration which can be measured and be reported with 99% confidence that the true value is greater than zero.

NAMA—The National Automatic Merchandising Association of Chicago, Illinois.

NSF—NSF International, Ann Arbor, Michigan 48105.

NTU—Nephelometric Turbidity Unit.

National Primary Drinking Water Regulations--Primary drinking water regulations and implementation regulations promulgated by the Administrator under the Federal act at 40 CFR [141.1--141.42 and 142.1--142.55] PARTS 141 AND 142 (RELATING TO NATIONAL PRIMARY DRINKING WATER REGULATIONS; AND NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION). The term includes interim, revised and final regulations.

National Secondary Drinking Water Regulations—Secondary drinking water regulations promulgated by the Administrator under the Federal act at 40 CFR 143.1—143.4.

New source—A source of water supply that is not covered by a valid permit issued under the act of April 22, 1905 (P. L. 260, No. 182) (35 P. S. § § 711—716) (Repealed) or under this chapter as a regular source of supply for the public water system.

Noncommunity water system—A public water system which is not a community water system.

Nontransient noncommunity water system—A noncommunity water system that regularly serves at least 25 of the same persons over 6 months per year.

Person—An individual, partnership, association, company, corporation, municipality, municipal authority, political subdivision or an agency of Federal or State government. The term includes the officers, employes and agents of a partnership, association, company, corporation, municipality, municipal authority, political subdivision, or an agency of Federal or State government.

Point-of-Entry (POE) device—A treatment device used as an alternative to central treatment that is installed on a public water line or service connection to a house, building or other facility for the purpose of reducing contaminants in the water distributed throughout the house, building or facility.

Public water supplier—A person who owns or operates a public water system.

Public water system—A system which provides water to the public for human consumption which has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The term includes collection, treatment, storage and distribution facilities under control of the operator of the system and used in connection with the system. The term includes collection or pretreatment storage facilities not under control of the operator which are used in connection with the system. The term also includes a system which provides water for bottling or bulk hauling for human consumption. Water for human consumption includes water that is used for drinking, bathing and showering, cooking, dishwashing or maintaining oral hygiene.

Repeat compliance period—A subsequent compliance period after the initial compliance period.

Retail water facility—A public water system which provides water for bottling without the use of a water vending machine by dispensing unit servings of water in containers whether or not the containers are provided by the customers.

SOC—Synthetic Organic Chemical.

SUVA--SPECIFIC ULTRAVIOLET ABSORPTION AT 254 NANOMETERS (nm)--AN INDICATOR OF THE HUMIC CONTENT OF WATER. IT IS A CALCULATED

PARAMETER OBTAINED BY DIVIDING A SAMPLE'S ULTRAVIOLET ABSORPTION AT A WAVELENGTH OF 254 NM (UV_{254}) (IN M^{-1}) BY ITS CONCENTRATION OF DISSOLVED ORGANIC CARBON (DOC) (IN MG/L).

Sanitary survey—An onsite review and evaluation of a public water system's source, facilities and equipment and the operation and maintenance procedures used by a public water supplier for producing and distributing safe drinking water.

Sedimentation – A process for the removal **[by gravity]** of **[settleable]** solids before filtration **BY GRAVITY OR SEPARATION**.

Slow sand filtration—A process for the purpose of substantial particulate removal by physical and biological mechanisms during the passage of raw water through a bed of sand at low velocity—generally less than .4 meters per hour.

Source—The place from which water for a public water system originates or is derived, including, but not limited to, a well, spring, stream, reservoir, pond, lake or interconnection.

Substantial modification—A change in a public water system that may affect the quantity or quality of water served to the public or which may be prejudicial to the public health or safety and includes the addition of new sources; the expansion of existing facilities; changes in treatment processes; addition, removal, renovation or substitution of

equipment or facilities; and interconnections.

Surface water--Water open to the atmosphere or subject to surface runoff [, or water directly influenced by surface water, which may include springs, infiltration galleries, cribs or wells]. The term does not include finished water. [Water is directly influenced by surface water when the aquifer is configured to allow the passage of pathogenic protozoans, subjecting the source to contamination by the protozoans. Direct influence may be determined on a case-by-case basis and may be determined by one or both of the following:

(i) Significant and relatively rapid shifts in water characteristics, such as turbidity, temperature, conductivity or pH (which may also change in groundwater but at a much slower rate) which closely correlate to climatologic or surface water conditions.

(ii) The presence of insects or other macroorganisms, algae, organic debris or large-diameter protozoans such as Giardia lamblia.]

System—

(i) A group of facilities used to provide water for human consumption including facilities used for collection, treatment, storage and distribution. The facilities shall constitute a system if they are adjacent or geographically proximate to each other and meet at least one of the following criteria:

(A) The facilities provide water to the same establishment which is a business or commercial enterprise or an arrangement of residential or nonresidential structures having a common purpose and includes mobile home parks, multi-unit housing complexes, phased subdivisions, campgrounds and motels.

(B) The facilities are owned, managed or operated by the same person.

(C) The facilities have been regulated as a single public water system under the Federal act or the act.

(ii) This definition may not be interpreted to require two or more currently-regulated public water systems to become one system.

TOC--TOTAL ORGANIC CARBON--THE TOTAL ORGANIC CARBON IN MG/L MEASURED USING HEAT, OXYGEN, ULTRAVIOLET IRRADIATION, CHEMICAL OXIDANTS OR COMBINATIONS OF THESE OXIDANTS THAT CONVERT ORGANIC CARBON TO CARBON DIOXIDE, ROUNDED TO TWO SIGNIFICANT FIGURES.

TTHM--TOTAL TRIHALOMETHANES—**THE SUM OF THE CONCENTRATIONS IN MILLIGRAMS PER LITER OF THE TRIHALOMETHANE COMPOUNDS (TRICHLOROMETHANE, BROMODICHLOROMETHANE, DIBROMOCHLOROMETHANE, AND TRIBROMOMETHANE), ROUNDED TO TWO SIGNIFICANT FIGURES AFTER ADDITION**.

Too numerous to count—Two hundred or more total bacterial colonies on a 47-mm diameter membrane filter.

Transient noncommunity water system—A public water system which is not a community, nontransient noncommunity, bottled or vended water system, nor a retail water facility or a bulk water hauling system.

Transmission—The movement of water from the source to a point of storage, treatment or distribution or from the point of treatment to the distribution system.

Treatment technique—A requirement which specifies a specific treatment method known to cause a reduction in the level of a contaminant which cannot practically be regulated by establishing an MCL. The term includes treatment technique requirements established under the Federal act, and treatment technique requirements adopted under the act.

Type of product—A particular kind of water for bottling characterized by its source or treatment process. Examples of the water include distilled water, mineral water, spring water and well water.

VOC—Volatile synthetic organic chemical.

Vended water system—A public water system which provides water for bottling

through the use of one or more water vending machines.

Waterborne disease outbreak—An illness of the same etiology experienced by two or more persons and attributed to pathogenic organisms in which the public water system is implicated as the source of illness by the Department of Health.

Water for bottling—Artificial or natural mineral, spring or other water for bottling as drinking water.

Water vending machine—A self-contained, self-service device which, upon insertion of a coin, paper currency, token, card, key or other similar means or through manual operation, dispenses unit servings of water, either in bulk or in packages, without the necessity of replenishing the device between each vending operation.

Wellhead protection area—The surface and subsurface area surrounding a water well, well field, spring or infiltration gallery supplying a public water system, through which contaminants are reasonably likely to move toward and reach the water source. A wellhead protection area shall consist of the following zones:

(i) *Zone I.* The protective zone immediately surrounding a well, spring or infiltration gallery which shall be a 100-to-400-foot radius depending on site-specific source and aquifer characteristics.

(ii) *Zone II.* The zone encompassing the portion of the aquifer through which water is diverted to a well or flows to a spring or infiltration gallery. Zone II shall be a 1/2 mile radius around the source unless a more detailed delineation is approved.

(iii) *Zone III.* The zone beyond Zone II that contributes surface water and groundwater to Zones I and II.

Wellhead protection program—A comprehensive program designed to protect a well, spring or infiltration gallery used by a public water system from contamination.

Subchapter B. MCLS, MRDLS OR TREATMENT TECHNIQUE REQUIREMENTS

§ 109.202. State MCLs, MRDLS and treatment technique requirements.

(a) *Primary MCLs.*

(1) A public water system shall supply drinking water that complies with the primary MCLs adopted by the EQB under the act.

(2) This subchapter incorporates by reference the primary MCLs in the National Primary Drinking Water Regulations, at 40 CFR Part 141, Subparts B and G (relating to maximum contaminant levels) as State MCLs, under authority of section 4 of the act (35 P. S. § 721.4), unless other MCLs are established by regulations of the Department. The

primary MCLs which are incorporated by reference are effective on the date established by the Federal regulations.

(3) A PUBLIC WATER SYSTEM THAT IS INSTALLING GRANULAR ACTIVATED CARBON OR MEMBRANE TECHNOLOGY TO COMPLY WITH THE MCL FOR TTHMS, HAA5, CHLORITE (WHERE APPLICABLE) OR BROMATE (WHERE APPLICABLE) MAY APPLY TO THE DEPARTMENT FOR AN EXTENSION OF UP TO 24 MONTHS PAST THE APPLICABLE COMPLIANCE DATE SPECIFIED IN THE FEDERAL REGULATIONS[.], BUT NOT BEYOND DECEMBER 31, 2003. IN GRANTING THE EXTENSION, THE DEPARTMENT WILL SET A SCHEDULE FOR COMPLIANCE AND MAY SPECIFY ANY INTERIM MEASURES THAT THE DEPARTMENT DEEMS NECESSARY. FAILURE TO MEET THE SCHEDULE OR INTERIM TREATMENT REQUIREMENTS CONSTITUTES A VIOLATION OF NATIONAL PRIMARY DRINKING WATER REGULATIONS.

(b) *Secondary MCLs.*

(1) A public water system shall supply drinking water that complies with the secondary MCLs adopted by the EQB under the act, except for the MCL for pH which represents a reasonable goal for drinking water quality.

(2) This subchapter incorporates by reference the secondary MCLs established by the EPA in the National Secondary Drinking Water Regulations, 40 CFR 143.3 (relating to Secondary MCLs), as of January 30, 1991, as State MCLs, under the authority of section

4 of the act, unless other MCLs are established by regulations of the Department. The secondary MCL for copper is not incorporated by reference.

(3) A secondary MCL for aluminum of 0.2 mg/L is adopted as a State MCL.

(c) *Treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts.* A public water system shall provide adequate treatment to reliably protect users from the adverse health effects of microbiological contaminants, including pathogenic bacteria, viruses and protozoan cysts. The number and type of treatment barriers and the efficacy of treatment provided shall be commensurate with the type, degree and likelihood of contamination in the source water.

(1) A public water supplier shall provide, as a minimum, continuous filtration and disinfection for surface water sources. The treatment technique shall provide at least 99.9% removal and inactivation of Giardia lamblia cysts, and at least 99.99% removal and inactivation of enteric viruses. The Department, depending on source water quality conditions, may require additional treatment as necessary to meet the requirements of this chapter and to protect the public health.

(i) The filtration process shall meet the following performance requirements:

(A) *Conventional or direct filtration.*

(I) The filtered water turbidity shall be less than or equal to .5 NTU in 95% of the measurements taken each month under § 109.301(1) (relating to general monitoring requirements).

(II) The filtered water turbidity shall be less than or equal to 2.0 NTU at all times, measured under § 109.301(1).

(B) *Slow sand or diatomaceous earth filtration.*

(I) The filtered water turbidity shall be less than or equal to 1.0 NTU in 95% of the measurements taken each month under § 109.301(1).

(II) The filtered water turbidity shall be less than or equal to 2.0 NTU at all times, measured under § 109.301(1).

(C) *Other filtration technologies.* The same performance criteria as those given for conventional filtration and direct filtration in clause (A) shall be achieved.

(ii) The combined total effect of disinfection processes utilized in a filtration plant shall achieve at least a 90% inactivation of Giardia cysts and a 99.9% inactivation of viruses, as determined by CTs and measurement methods established by the EPA. The residual disinfectant concentration in the water delivered to the distribution system prior to the first customer may not be less than .2 mg/l for more than 4 hours, as demonstrated by measurement taken under § 109.301(1). Failure to maintain this level that extends beyond 4 hours constitutes a breakdown in treatment under § 109.402 (relating to emergency public notification).

(iii) For an unfiltered surface water source permitted for use prior to March 25, 1989, the public water supplier shall:

(A) Maintain a minimum residual disinfectant concentration in the water delivered to the distribution system prior to the first customer of 2.5 mg/l expressed as free chlorine or its equivalent as approved by the Department. The residual disinfectant concentration shall be demonstrated by measurements taken under § 109.301(2).

(I) For a system using disinfectants other than free chlorine, the water supplier shall maintain:

(-a-) A minimum concentration that provides, in terms of CTs achieved, a level of protection equivalent to that provided by 2.5 mg/l free chlorine, as determined by the available contact time between the point of application and the first customer, under peak flow conditions.

(-b-) At least .2 mg/l of disinfectant in the water delivered to the distribution system prior to the first customer.

(II) For a system with extended contact times, generally 60 minutes or more, between the point of application and the first customer, the Department may allow the water supplier to maintain a disinfectant residual concentration less than 2.5 mg/l free chlorine or its equivalent if the CTs established by the EPA are achieved.

(B) Provide continuous filtration and disinfection in accordance with this paragraph according to the following schedule:

(I) By December 31, 1991, for a public water system that, prior to March 25, 1989, had a waterborne disease outbreak or Giardia contamination in its surface water source.

(II) Within 48 months after the discovery of one of the following conditions, or by December 31, 1995, whichever is earlier, for a public water system that experiences the condition after March 25, 1989:

(-a-) A waterborne disease outbreak.

(-b-) Giardia contamination in its surface water source.

(-c-) A violation of the microbiological MCL, the turbidity MCL or the monitoring or reporting requirements for the microbiological MCL.

(-d-) A violation of the source microbiological or turbidity monitoring requirements under § 109.301(2)(i)(A) and (B) or the related reporting requirements.

(-e-) The source water fecal coliform concentration exceeds 20/100 ml or the total coliform concentration exceeds 100/100 ml in a source water sample collected under § 109.301(2).

(-f-) The source water turbidity level exceeds 5.0 NTU in a sample collected under § 109.301(2).

(-g-) The system fails to maintain a continuous residual disinfectant concentration as required under this subparagraph.

(III) By December 31, 1995, for other public water systems not covered by subclause (I) or (II).

(iv) For an unfiltered surface water source which is subject to subparagraph (iii)(B)(II) and (III), the public water supplier shall:

(A) Submit to the Department for approval a feasibility study which specifies the means by which the supplier shall, by the applicable deadline established in subparagraph (iii)(B), meet the requirements of this paragraph. The study shall identify the alternative which best assures the long-term viability of the public water system to meet drinking water standards. The study shall propose a schedule for completion of work, including the design, financing, construction and operation of one of the following alternatives:

(I) Permanent filtration treatment facilities that meet the requirements of this chapter.

(II) Abandonment of the unfiltered surface water source and one of the following:

(-a-) Permanent interconnection with another water supply which meets the requirements of this chapter.

(-b-) Permanent water treatment facilities, utilizing groundwater as the source of supply, which meet the requirements of this chapter.

(-c-) Provision for adequate supply from existing sources which meets the requirements of this chapter.

(B) Submit the feasibility study according to the following schedule:

(I) By March 31, 1992, for a supplier which prior to August 31, 1991, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(II) By June 30, 1992, for a supplier which after August 31, 1991, but before January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(III) By August 31, 1992, for other suppliers.

(C) Submit a full and complete permit application for the means identified in the approved feasibility study by which the supplier shall meet the requirements of this paragraph, according to the following schedule:

(I) By the date set in the approved feasibility study for a supplier which, prior to January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(II) By June 30, 1993, for a supplier subject to the requirements of subparagraph (iii)(B)(III), except that a public water supplier serving fewer than 3,300 people may submit its permit application by December 31, 1993.

(D) Initiate construction of the means identified in the approved feasibility study by which the supplier shall meet the requirements of this paragraph, according to the following schedule:

(I) By the date set in the approved feasibility study for a supplier which, prior to January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(II) By June 30, 1994, for a supplier subject to the requirements of subparagraph (iii)(B)(III), except that a public water supplier serving fewer than 3,300 people may initiate construction by December 31, 1994.

(E) Complete construction and commence operation of the alternative identified in the approved feasibility study by the dates specified in subparagraph (iii)(B).

(v) The requirements of subparagraph (iv) do not modify, repeal, suspend, supersede or otherwise change the terms of a compliance schedule or deadline, established by an existing compliance order, consent order and agreement, consent adjudication, court order or consent decree. For purposes of this paragraph, the term "existing" means a compliance order, consent order and agreement, consent adjudication, court order or consent decree which was issued or dated before December 14, 1991.

(vi) For a source including springs, infiltration galleries, cribs or wells permitted for use by the Department prior to May 16, 1992, and determined by the Department to be directly influenced by surface water, the public water supplier shall:

(A) Maintain a minimum residual disinfectant concentration in the water delivered to the distribution system prior to the first customer in accordance with subsection (c)(1)(iii)(A).

(B) Provide continuous filtration and disinfection in accordance with this paragraph within 48 months after the Department determines the source of supply is directly influenced by surface water.

(C) Submit to the Department for approval a feasibility study within 1 year after the Department determines the source of supply is directly influenced by surface water. The feasibility study shall specify the means by which the supplier shall, within the deadline established in clause (B), meet the requirements of this paragraph and shall otherwise comply with paragraph (1)(iv)(A).

(2) A community public water system shall provide continuous disinfection for groundwater sources.

(d) *Fluoride.* A public water system shall comply with the primary MCL for fluoride of 2 mg/l, except that a noncommunity water system implementing a fluoridation program approved by the Department of Health and using fluoridation facilities approved by the Department under § 109.505 (relating to requirements for noncommunity water systems) may exceed the MCL for fluoride but may not exceed the fluoride level approved by the Department of Health. The secondary MCL for fluoride of 2 mg/l established by the EPA under 40 CFR 143.3 (relating to secondary MCLs) is not incorporated into this chapter.

(e) *Treatment technique requirements for acrylamide and epichlorohydrin.* Systems which use acrylamide or epichlorohydrin in the water treatment process shall certify in accordance with § 109.701(d)(7) (relating to reporting and recordkeeping) that the following specified levels have not been exceeded:

(1) Acrylamide = 0.05% dosed at 1 ppm (or equivalent).

(2) Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent).

(f) *MRDLS.*

(1) A PUBLIC WATER SYSTEM SHALL SUPPLY DRINKING WATER THAT COMPLIES WITH THE MRDLS ADOPTED BY THE EQB UNDER THE ACT.

(2) THIS SUBCHAPTER INCORPORATES BY REFERENCE THE PRIMARY MRDLS IN THE NATIONAL PRIMARY DRINKING WATER REGULATIONS, IN 40 CFR PART 141, SUBPART G (RELATING TO MAXIMUM CONTAMINANT LEVELS AND MAXIMUM RESIDUAL DISINFECTANT LEVELS) AS STATE MRDLS, UNDER THE AUTHORITY OF SECTION 4 OF THE ACT (35 P. S. § 721.4), UNLESS OTHER MRDLS ARE ESTABLISHED BY REGULATIONS OF THE DEPARTMENT. THE PRIMARY MRDLS WHICH ARE INCORPORATED BY REFERENCE ARE EFFECTIVE ON THE DATE ESTABLISHED BY THE FEDERAL REGULATIONS.

(g) *TREATMENT TECHNIQUE REQUIREMENTS FOR DISINFECTION BYPRODUCT PRECURSORS.*

[(1)] A PUBLIC WATER SYSTEM THAT USES EITHER SURFACE WATER OR GUDI SOURCES AND THAT USES CONVENTIONAL FILTRATION TREATMENT SHALL PROVIDE ADEQUATE TREATMENT TO RELIABLY CONTROL DISINFECTION BYPRODUCT PRECURSORS IN THE SOURCE WATER. ENHANCED COAGULATION AND ENHANCED SOFTENING ARE DEEMED BY THE DEPARTMENT TO BE TREATMENT TECHNIQUES FOR THE CONTROL OF DISINFECTION BYPRODUCT PRECURSORS IN DRINKING WATER TREATMENT AND DISTRIBUTION SYSTEMS.

THIS SUBCHAPTER INCORPORATES BY REFERENCE THE TREATMENT TECHNIQUE IN 40 CFR 141.135 (RELATING TO TREATMENT TECHNIQUE FOR CONTROL OF DISINFECTION BYPRODUCT (DBP) PRECURSORS). COAGULANTS APPROVED BY THE DEPARTMENT ARE DEEMED TO BE ACCEPTABLE FOR THE PURPOSE OF THIS TREATMENT TECHNIQUE. THIS TREATMENT TECHNIQUE IS EFFECTIVE ON THE DATE ESTABLISHED BY THE FEDERAL REGULATIONS.

[(2) THE FOLLOWING REQUIREMENTS APPLY:

(i) SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT USE CONVENTIONAL FILTRATION TREATMENT SHALL OPERATE WITH ENHANCED COAGULATION OR ENHANCED SOFTENING TO ACHIEVE THE TOC PERCENT REMOVAL LEVELS SPECIFIED IN 40 CFR 141.135 UNLESS THE SYSTEM MEETS AT LEAST ONE OF THE ALTERNATIVE COMPLIANCE CRITERIA LISTED IN SUBPARAGRAPH (ii) OR (iii).

(ii) SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES THAT USE CONVENTIONAL FILTRATION TREATMENT MAY USE THE ALTERNATIVE COMPLIANCE CRITERIA IN CLAUSES (A)–(F) TO COMPLY WITH THIS SUBSECTION IN LIEU OF COMPLYING WITH SUBPARAGRAPH (i).

(A) THE SYSTEM'S SOURCE WATER TOC LEVEL, MEASURED IN ACCORDANCE WITH SUBCHAPTER C (RELATING TO MONITORING REQUIREMENTS), IS LESS THAN 2.0 MG/L, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(B) THE SYSTEM'S TREATED WATER TOC LEVEL, MEASURED IN ACCORDANCE WITH SUBCHAPTER C, IS LESS THAN 2.0 MG/L, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(C) THE SYSTEM'S SOURCE WATER TOC LEVEL, MEASURED IN ACCORDANCE WITH SUBCHAPTER C, IS LESS THAN 4.0 MG/L, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE; THE SOURCE WATER ALKALINITY, MEASURED IN ACCORDANCE WITH SUBCHAPTER C, IS GREATER THAN 60 MG/L (AS $CACO_3$), CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE; AND EITHER THE TTHM AND HAA5 RUNNING ANNUAL AVERAGES ARE NO GREATER THAN 0.040 MG/L AND 0.030 MG/L, RESPECTIVELY, OR PRIOR TO THE EFFECTIVE DATE FOR COMPLIANCE IN SUBSECTION (a)(3), THE SYSTEM HAS MADE A CLEAR AND IRREVOCABLE FINANCIAL COMMITMENT NOT LATER THAN THE EFFECTIVE DATE FOR COMPLIANCE TO USE TECHNOLOGIES THAT WILL LIMIT THE LEVELS OF TTHMS AND HAA5 TO NO MORE THAN 0.040 MG/L AND 0.030 MG/L, RESPECTIVELY. SYSTEMS SHALL SUMMIT EVIDENCE OF A CLEAR AND IRREVOCABLE FINANCIAL COMMITMENT. IN ADDITION TO A SCHEDULE CONTAINING MILESTONES AND PERIODIC PROGRESS REPORTS FOR INSTALLATION AND OPERATION OF APPROPRIATE TECHNOLOGIES, TO THE DEPARTMENT FOR APPROVAL NOT LATER THAN THE EFFECTIVE DATE FOR COMPLIANCE. THESE TECHNOLOGIES SHALL BE INSTALLED AND OPERATING BY JUNE 30, 2005. FAILURE TO INSTALL AND OPERATE THESE TECHNOLOGIES BY THE DATE IN THE APPROVED SCHEDULE WILL

CONSTITUTE A VIOLATION OF THE NATIONAL PRIMARY DRINKING WATER REGULATIONS.

(D) THE TTHM AND HAA5 RUNNING ANNUAL AVERAGES ARE NO GREATER THAN 0.040 MG/L AND 0.030 MG/L, RESPECTIVELY, AND THE SYSTEM USES ONLY CHLORINE FOR PRIMARY DISINFECTION AND MAINTENANCE OF A RESIDUAL IN THE DISTRIBUTION SYSTEM.

(E) THE SYSTEM'S SOURCE WATER SUVA, PRIOR TO ANY TREATMENT AND MEASURED MONTHLY IN ACCORDANCE WITH SUBCHAPTER C, IS NO GREATER THAN 2.0 L/MG-M, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(F) THE SYSTEM'S FINISHED WATER SUVA, MEASURED MONTHLY IN ACCORDANCE WITH SUBCHAPTER C, IS LESS THAN OR EQUAL TO 2.0 L/MG-M, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(iii) SYSTEMS PRACTICING ENHANCED SOFTENING THAT CANNOT ACHIEVE THE TOC REMOVALS REQUIRED BY SUBPARAGRAPH (i) MAY USE THE ALTERNATIVE COMPLIANCE CRITERIA IN CLAUSES (A) AND (B) IN LIEU OF COMPLYING WITH SUBPARAGRAPH (i).

(A) SOFTENING THAT RESULTS IN LOWERING THE TREATED WATER ALKALINITY TO LESS THAN 60 MG/L (AS $CACO_3$), MEASURED MONTHLY IN ACCORDANCE WITH SUBCHAPTER C AND CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(B) SOFTENING THAT RESULTS IN REMOVING AT LEAST 10 MG/L OF MAGNESIUM HARDNESS (AS $CACO_3$), MEASURED MONTHLY AND CALCULATED QUARTERLY AS AN ANNUAL RUNNING AVERAGE.]

§ 109.203. Unregulated contaminants.

The Department may by order establish [a] AN MCL or treatment technique requirement on a case-by-case basis for a public water system in which an unregulated contaminant creates a health risk to the users of the public water system. An unregulated contaminant is one for which no MCL or treatment technique requirement has been established under § 109.202 (relating to State MCLs, MRDLS and treatment technique requirements).

Subchapter C. MONITORING REQUIREMENTS

§ 109.301. General monitoring requirements.

The monitoring [and analytical] requirements[, including approved sampling procedures and analytical techniques,] established by the EPA under the National Primary Drinking Water Regulations, 40 CFR Part 141 (relating to national primary drinking water regulations), as of December 8, 1984, are incorporated by reference. Public water suppliers shall monitor for compliance with MCLs AND MRDLS in accordance with the requirements established in the National Primary Drinking Water Regulations, except as otherwise established by this chapter unless increased monitoring is required by the Department under § 109.302 (relating to special monitoring requirements). Alternative monitoring requirements may be established by the Department and may be implemented in lieu of monitoring requirements for a particular

National Primary Drinking Water Regulation if the alternative monitoring requirements are in conformance with the Federal act and regulations. The monitoring requirements shall be applied as follows:

(1) *Performance monitoring for filtration and disinfection.* A public water supplier providing filtration and disinfection of surface water sources shall, beginning July 1, 1990, conduct the performance monitoring requirements established by the EPA under the National Primary Drinking Water Regulations, unless increased monitoring is required by the Department under § 109.302.

(i) Except as provided under subparagraphs (ii) and (iii), a public water supplier:

(A) Shall determine the turbidity level of representative samples of the system's filtered water at least once every 4 hours that the system is in operation, except as provided in clause (B).

(B) May substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by the Department. For systems using slow sand filtration or filtration treatment other than conventional filtration, direct filtration or diatomaceous earth filtration, the Department may reduce sampling frequency to once per day.

(C) Shall continuously monitor the residual disinfectant concentration of the water being supplied to the distribution system and record both the lowest value for each day and the number of periods each day when the value is less than .2 mg/l for more than 4 hours. If a public water system's continuous monitoring equipment fails, the public water

supplier may, upon notification of the Department under § 109.402 (relating to emergency public notification), substitute grab sampling every 4 hours in lieu of continuous monitoring. Grab sampling may not be substituted for continuous monitoring for longer than 5 days after the equipment fails.

(D) Shall measure the residual disinfectant concentration at representative points in the distribution system no less frequently than the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(ii) For a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

System Size (People)	*Samples/Day*
‹500	1
500—1,000	2
1,001—2,500	3
2,501—3,300	4

If the Department reduces the monitoring, the supplier shall nevertheless collect and analyze another residual disinfectant measurement as soon as possible, but no longer than 4 hours from any measurement which is less than .2 mg/l.

(iii) For a public water supplier serving fewer than 500 people, the Department may reduce the filtered water turbidity monitoring to one grab sample per day, if the historical performance and operation of the system indicate effective turbidity removal is maintained under the range of conditions expected to occur in the system's source water.

(2) *Performance monitoring for unfiltered surface water*. A public water supplier using unfiltered surface water sources shall conduct the following source water and performance monitoring requirements on an interim basis until filtration is provided, unless increased monitoring is required by the Department under § 109.302:

(i) Except as provided under subparagraphs (ii) and (iii), a public water supplier:

(A) Shall perform fecal coliform or total coliform density determinations on samples of the source water immediately prior to disinfection. Regardless of source water turbidity, the minimum frequency of sampling for fecal or total coliform determination may be no less than the following:

System Size (People)	*Samples / Week*
‹500	1
500—3,299	2
3,300—10,000	3

10,001—25,000	4
25,001 or more	5

(B) Shall measure the turbidity of a representative grab sample of the source water immediately prior to disinfection at least once every 4 hours that the system is in operation, except as provided in clause (C).

(C) May substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by the Department.

(D) Shall continuously monitor the residual disinfectant concentration required under § 109.202(c)(1)(iii) (relating to State MCLs, MRDLS and treatment technique requirements) of the water being supplied to the distribution system and record the lowest value for each day. If a public water system's continuous monitoring equipment fails, the public water supplier may, upon notification of the Department under § 109.402, substitute grab sampling every 4 hours in lieu of continuous monitoring. Grab sampling may not be substituted for continuous monitoring for longer than 5 days after the equipment fails.

(E) Shall measure the residual disinfectant concentration at representative points in the distribution system no less frequently than the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(ii) For a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

System Size (People)	*Samples/Day*
‹500	1
500—1,000	2
1,001—2,500	3
2,501—3,300	4

If the Department reduces the monitoring, the supplier shall nevertheless collect and analyze another residual disinfectant measurement as soon as possible, but no longer than 4 hours from any measurement which is less than the residual disinfectant concentration approved under § 109.202(c)(1)(iii).

(iii) For a public water supplier serving fewer than 500 people, the Department may reduce the source water turbidity monitoring to one grab sample per day, if the historical performance and operation of the system indicate effective disinfection is maintained under the range of conditions expected to occur in the system's source water.

(3) *Monitoring requirements for coliforms*. Public water systems shall determine the presence or absence of total coliforms for each routine or check sample; and, the presence or absence of fecal coliforms or E. coli for a total coliform positive sample in accordance with analytical techniques approved by the Department under § 109.304 (relating to analytical requirements). A system may forego fecal coliform or E. coli testing on a total coliform-positive sample if the system assumes that any total coliform-positive sample is also fecal coliform-positive. A system which chooses to forego fecal coliform or E. coli testing shall, under § 109.402(1), notify the Department within 1 hour of when the system is first notified of the total coliform-positive sample result.

(i) *Frequency*. Public water systems shall collect samples at regular time intervals throughout the monitoring period as specified in the system distribution sample siting plan under § 109.303(a)(2) (relating to sampling requirements). Systems which use groundwater and serve 4,900 persons or fewer, may collect all required samples on a single day if they are from different sampling sites in the distribution system.

(A) Except as provided under § 109.705(b) (relating to sanitary surveys), the number of monthly total coliform samples that community water systems shall take is based on the population served by the system as follows:

Population Served	*Minimum Number of Samples per Month*

25 to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80

83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

(B) Except as provided under § 109.705(c), the number of periodic total coliform samples that noncommunity water systems shall take is as follows:

(I) A noncommunity water system using only groundwater and serving 1,000 or fewer persons per day on a permanent basis, January through December each year, shall take one sample each calendar quarter that the system provides water to the public.

(II) A noncommunity water system using surface water (in total or in part) or serving more than 1,000 persons per day during a given month shall take the same number of samples as a community water system serving the same number of persons specified in clause (A) for each month the system provides water to the public, even if the population served is temporarily fewer than 1,000 persons per day. A groundwater system determined to be under the influence of surface water shall begin monitoring at this frequency 6 months after the Department determines that the source water is under the direct influence of surface water.

(C) A public water system that uses a surface water source and does not practice filtration in compliance with Subchapter B (relating to MCLs, MRDLS or treatment technique requirements) shall collect at least one total coliform sample at the entry point, or an equivalent location as determined by the Department, to the distribution system within 24 hours of each day that the turbidity level in the source water, measured as specified in paragraph (2)(i)(B), exceeds 1.0 NTU. The Department may extend this 24-hour collection limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the sample analyzed within 30 hours of collection. A logistical problem outside the system's control may include a source water turbidity result exceeding 1.0 NTU over a holiday or weekend in which the services of a Department certified laboratory are not available within the prescribed

sample holding time. These sample results shall be included in determining compliance with the MCL for total coliforms established under § 109.202(a)(2).

(ii) *Repeat monitoring.* A public water system shall collect a set of check samples within 24 hours of being notified of a total coliform-positive routine or check sample. The Department may extend this 24-hour collection limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the check samples analyzed within 30 hours of collection. A logistical problem outside the system's control may include a coliform-positive sample result received over a holiday or weekend in which the services of a Department certified laboratory are not available within the prescribed sample holding time.

(A) A system which collects more than one routine sample per monitoring period shall collect at least three check samples for each total coliform-positive sample found.

(B) A system which collects only one routine sample per monitoring period shall collect at least four check samples for each total coliform-positive sample found.

(C) The system shall collect at least one check sample from the sampling tap where the original total coliform-positive sample was taken, at least one check sample at a tap within five service connections upstream of the original coliform-positive sample and at least one check sample within five service connections downstream of the original sampling site. If a total coliform-positive sample occurs at the end of the distribution system or one service connection away from the end of the distribution system, the water

supplier shall collect an additional check sample upstream of the original sample site in lieu of a downstream check sample.

(D) A system shall collect all check samples on the same day, except that a system with a single service connection may collect the required set of check samples all on the same day or consecutively over a 4-day period.

(E) If a check sample is total coliform-positive, the public water system shall collect additional check samples in the manner specified in this subparagraph. The system shall continue to collect check samples until either total coliforms are not detected in check samples, or the system determines that the MCL for total coliforms as established under § 109.202(a)(2) has been exceeded and notifies the Department.

(F) If a system collecting fewer than five routine samples per month has one or more valid total coliform-positive samples, the system shall collect at least five routine samples during the next month the system provides water to the public. The number of routine samples for the month following a total coliform-positive sample may be reduced by the Department to at least one sample the next month if the reason for the total coliform-positive sample is determined and the problem has been corrected or will be corrected before the end of the next month.

(G) Results of all routine and check samples not invalidated by the Department shall be included in determining compliance with the MCL for total coliforms as established under § 109.202(a)(2).

(iii) *Invalidation of total coliform samples.* A total coliform sample invalidated under this paragraph does not count towards meeting the minimum monitoring requirements of this section.

(A) The Department may invalidate a total coliform-positive sample if one of the following applies:

(I) The laboratory which performed the analysis establishes that improper sample analysis caused the total coliform-positive result.

(II) A domestic or other nondistribution system plumbing problem exists when a coliform contamination incident occurs that is limited to a specific service connection from which a coliform-positive sample was taken in a public water system with more than one service connection. The Department's determination to invalidate a sample shall be based on a total coliform-positive check sample collected at the same tap as the original total coliform-positive sample and all total coliform-negative check samples collected within five service connections of the original total coliform positive sample. This type of sample invalidation does not apply to public water systems with only one service connection.

(III) A total coliform-positive sample result is due to a circumstance or condition which does not reflect water quality in the distribution system. The Department's decision to invalidate a sample shall be based on evidence that the sample result does not reflect water quality in the distribution system. In this case, the system shall still collect

all check samples required under subparagraph (ii) to determine compliance with the MCL for total coliforms as established under § 109.202(a)(2).

(B) A laboratory shall invalidate a total coliform sample if no total coliforms are detected and one of the following occurs:

(I) The sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined.

(II) The sample exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter.

(C) If a laboratory invalidates a sample because of interference as specified in clause (B), the laboratory shall notify the system within 1 business day to collect another sample from the same location as the original sample within 24 hours of being notified of the interference and have it analyzed for the presence of total coliforms. The system shall resample within 24 hours of being notified of interference and continue to resample every 24 hours until it receives a valid result. The Department may extend this 24-hour limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the resamples analyzed within 30 hours. A logistical problem outside the system's control may include a notification of a laboratory sample invalidation, due to interference, which is received over a holiday or weekend in which the services of a Department certified laboratory are not available within the prescribed sample holding time.

(iv) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement or repair, may not be used to determine compliance with the MCL for total coliform. Check samples taken under subparagraph (ii) are not considered special purpose samples, and shall be used to determine compliance with the monitoring and MCL requirements for total coliforms established under this paragraph and § 109.202(a)(2).

(4) *Exception.* For a water system which complies with the performance monitoring requirements under paragraph (2), the monitoring requirements for compliance with the turbidity MCL do not apply.

(5) *Monitoring requirements for VOCs.* Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) (relating to MCLs for organic contaminants). The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.24(f) (relating to organic chemicals other than total trihalomethanes, sampling and analytical requirements), incorporated herein by reference, except as modified by this chapter. Initial or first year monitoring mentioned in this paragraph refers to VOC monitoring conducted on or after January 1, 1993.

(i) *Vinyl chloride.* Monitoring for compliance with the MCL for vinyl chloride is required only for groundwater entry points at which one or more of the following two-carbon organic compounds have been detected: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene or 1,1-dichloroethylene.

(ii) *Initial monitoring schedule.* The initial monitoring shall consist of four consecutive quarterly samples at each entry point in accordance with the following monitoring schedule during the compliance period beginning January 1, 1993, except for systems which are granted reduced initial monitoring in accordance with clauses (E) and (F). A system which monitors during the initial monitoring period, but begins monitoring before its scheduled initial monitoring year specified in this subparagraph, shall begin monitoring every entry point during the first calendar quarter of the year it begins monitoring, except as provided in clause (E).

(A) Systems serving more than 10,000 persons shall begin monitoring during the quarter beginning January 1, 1994.

(B) Systems serving 3,301 persons to 10,000 persons shall begin monitoring during the quarter beginning January 1, 1995.

(C) Systems serving 500 to 3,300 persons shall begin monitoring during the quarter beginning January 1, 1993.

(D) Systems serving fewer than 500 persons shall begin monitoring during the quarter beginning January 1, 1994.

(E) For systems serving 3,300 or fewer people which monitor at least one quarter prior to October 1, 1993, and do not detect VOCs at an entry point during the first quarterly sample, the required initial monitoring is reduced to one sample at that entry point. For systems serving 500 to 3,300 people to qualify for this reduced monitoring, the

initial monitoring shall have been conducted during the quarter beginning January 1, 1993.

(F) For systems serving more than 3,300 people, which were in existence prior to January 1, 1993, initial monitoring for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) is reduced to one sample for each entry point which meets the following conditions:

(I) VOC monitoring required by the Department between January 1, 1988, and December 31, 1992, has been conducted and no VOCs regulated under 40 CFR 141.61(a) were detected.

(II) The first quarter monitoring required by this paragraph has been conducted during the first quarter of the system's scheduled monitoring year under this paragraph, with no detection of a VOC.

(G) Initial monitoring of new entry points associated with new sources which are permitted under Subchapter E (relating to permit requirements) to begin operation after December 31, 1992, shall conduct initial monitoring as follows:

(I) Entry points at which a VOC is detected during new source monitoring shall be monitored quarterly beginning the first quarter the entry points begin serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with subparagraph (iii)(D).

(II) Entry points at which no VOC is detected during new source monitoring shall begin initial quarterly monitoring during the first calendar quarter of the year after the entry point begins serving the public. If no VOC is detected during the first quarter of monitoring, first year monitoring is reduced to one sample at that entry point.

(iii) *Repeat monitoring for entry points at which a VOC is detected.*

(A) For entry points at which a VOC is detected at a level equal to or greater than its MCL during the first year of quarterly monitoring, the monitoring shall be repeated quarterly beginning the quarter following detection at a level equal to or greater than the MCL, for VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i), until reduced monitoring is granted in accordance with clause (D).

(B) For entry points at which a VOC is detected, and reduced monitoring is granted in accordance with clause (D), and a VOC is thereafter detected at a level greater than the MCL, the monitoring shall be repeated quarterly beginning the quarter following detection at a level for the VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i), until reduced monitoring is granted in accordance with clause (D).

(C) For entry points at which no VOC is detected during the first year of monitoring but a VOC is detected thereafter, the monitoring shall be repeated quarterly beginning the quarter following detection at a level for the VOCs for which the EPA has established

MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i), or until reduced monitoring is granted in accordance with clause (D).

(D) After analyses of four consecutive quarterly samples at an entry point, including initial quarterly samples, demonstrate that the VOC levels in each quarterly sample are less than the MCLs, the required monitoring is reduced to one sample per year at the entry point for the VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i).

(E) A confirmation sample shall be collected and analyzed for each VOC listed under 40 CFR 141.61(a) which is detected at a level in excess of its MCL during annual or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of notification by the certified laboratory performing the analysis that an MCL has been exceeded. The average of the results of the original and the confirmation sample will be used to determine compliance. Monitoring shall be completed by the deadline specified for VOC compliance monitoring.

(iv) *Repeat monitoring for entry points at which no VOC is detected.*

(A) For entry points at which VOCs are not detected during the first year of quarterly monitoring, or annual monitoring if only one sample was required at an entry point for first year monitoring under subparagraph (ii) (E), (F) or (G)(II), required monitoring is reduced to one sample per entry point per year.

(B) For groundwater entry points where VOCs are monitored in accordance with this paragraph, but are not detected during 3 years of quarterly or annual monitoring, or

both, required monitoring is reduced to one sample per entry point during each subsequent compliance period. Reduced monitoring shall be conducted at 3-year intervals from the year of required initial monitoring.

(v) *Reduced monitoring*. When reduced monitoring is provided under subparagraph (iii)(D), or subparagraph (iv)(A) or (B), the system shall monitor the entry point during the calendar year quarter of highest anticipated VOC levels or as specified by the Department. The reduced monitoring option in subparagraph (iv)(B) does not apply to entry points at which treatment has been installed for VOC removal. Quarterly performance monitoring is required for VOCs for which treatment has been installed.

(vi) *Waivers*. Waivers under 40 CFR 141.24(f) will not be available for the VOC monitoring requirements in this paragraph.

(6) *Monitoring requirements for SOCs (pesticides and PCBs)*. Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for SOCs established by the EPA under 40 CFR 141.61(c). The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.24(h), incorporated herein by reference except as modified by this chapter.

(i) *Initial monitoring schedule*. Initial monitoring shall consist of four consecutive quarterly samples at each entry point beginning during the quarter beginning January 1, 1995, except for systems which are granted an initial monitoring waiver in accordance with subparagraph (v). Systems which monitor during the initial monitoring period but

begin monitoring before 1995 shall begin monitoring during the first calendar quarter of the year.

(A) New entry points associated with new sources which are vulnerable to SOC contamination, as determined in accordance with subparagraph (v), and which begin operation after March 31, 1995, and do not detect an SOC during new source sampling shall begin initial quarterly monitoring during the first calendar year quarter of the year after the entry point begins serving the public.

(B) New entry points associated with new sources which are vulnerable to SOC contamination as determined in accordance with subparagraph (v), at which an SOC is detected during new source sampling shall begin initial quarterly monitoring the first quarter the entry point begins serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with subparagraph (ii)(E).

(ii) *Repeat monitoring for SOCs that are detected.* For entry points which were monitored for SOCs during the initial quarterly monitoring period or during the required quarterly monitoring immediately after being determined vulnerable to contamination by an SOC, repeat monitoring shall be conducted as follows:

(A) For entry points at which an SOC is detected at a level equal to or greater than its MCL, the monitoring for the detected SOC shall be continued quarterly, until reduced monitoring is granted in accordance with clause (E).

(B) For entry points at which an SOC is detected during the first year of quarterly monitoring, and reduced monitoring is granted in accordance with clause (E), and the

SOC is thereafter detected at a level greater than its MCL, the monitoring for the detected SOC shall be repeated quarterly, until reduced monitoring is granted in accordance with clause (E).

(C) For entry points at which an SOC is not detected during the first year of quarterly monitoring, but an SOC is detected initially thereafter at a level less than the MCL, monitoring shall be repeated annually for the detected SOC.

(D) For entry points at which an SOC is not detected during the first year of quarterly monitoring, but the SOC is detected thereafter at a level equal to or greater than the MCL, monitoring for that SOC shall be repeated quarterly, until reduced monitoring is granted in accordance with clause (E).

(E) After analyses of four consecutive quarterly samples at an entry point, including initial quarterly samples, demonstrate that the SOC level in each quarterly sample is less than the MCL, the required monitoring for each SOC detected below the MCL is reduced to one sample per year at the entry point.

(F) For entry points at which either heptachlor or heptachlor epoxide is detected during the initial round of consecutive quarterly samples, or in subsequent repeat samples, the monitoring shall be continued for both contaminants in accordance with the more frequent monitoring required of the two contaminants based on the level at which each is detected.

(G) A confirmation sample shall be collected and analyzed for each SOC listed under 40 CFR 141.61(c) which is detected at a level in excess of its MCL during annual

or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of the water supplier receiving notification from the certified laboratory performing the analysis that an MCL has been exceeded. The average of the results of the original and the confirmation samples will be used to determine compliance. Confirmation monitoring shall be completed by the deadline specified for SOC compliance monitoring.

(iii) *Repeat monitoring for SOCs that are not detected.* For entry points at which SOCs are not detected during the first year of quarterly monitoring, the required monitoring is reduced to one sample in each 3-year compliance period for systems serving 3,300 or fewer persons and to two consecutive quarterly samples in each compliance period for systems serving more than 3,300 persons. Reduced monitoring shall be conducted at 3-year intervals from the year of required initial VOC monitoring, in accordance with paragraph (5)(ii).

(iv) *Reduced monitoring.* When reduced monitoring is provided under subparagraph (ii) or (iii), the system shall monitor the entry point during the second calendar year quarter, or the second and third calendar year quarter when two quarterly samples are required in each compliance period, unless otherwise specified by the Department. The reduced monitoring option in subparagraph (iii) does not apply to entry points at which treatment has been installed for SOC removal. Compliance monitoring for SOCs for which treatment has been installed to comply with an MCL shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(v) *Waivers.* A waiver will be granted to a public water supplier from conducting the initial compliance monitoring or repeat monitoring, or both, for an SOC based on documentation provided by the public water supplier and a determination by the Department that the criteria in clause (B), (C) or (D) has been met. A waiver is effective for one compliance period and may be renewed in each subsequent compliance period. If the Department has not granted an areawide use waiver in accordance with clause (B), the public water supplier is responsible for submitting a waiver application and renewal application to the Department for review in accordance with clause (B) or (C) for specific entry points. Waiver applications will be evaluated relative to the vulnerability assessment area described in clause (A) and the criteria in clause (B) or (C). Entry points at which treatment has been installed to remove an SOC are not eligible for a monitoring waiver for the SOCs for which treatment has been installed.

(A) *Vulnerability assessment area for SOCs except dioxin and PCBs.*

(I) For groundwater entry points, the vulnerability assessment area shall consist of wellhead protection area Zones I and II.

(II) For surface water entry points, the vulnerability assessment area shall consist of the area that supplies water to the entry point and is separated from other watersheds by the highest topographic contour.

(B) *Use waivers.* An areawide use waiver will be granted by the Department for contaminants which the Department has determined have not been used, stored, manufactured or disposed of in this Commonwealth, or portions of this Commonwealth.

A use waiver specific to a particular entry point requires that an SOC was not used, stored, manufactured or disposed of in the vulnerability assessment area. If use waiver criteria cannot be met, a public water supplier may apply for a susceptibility waiver.

(C) *Susceptibility waivers.* A susceptibility waiver for specific contaminants may be granted based on the following criteria, and only applies to groundwater entry points:

(I) Previous analytical results.

(II) Environmental persistence and transport of the contaminant.

(III) Proximity of the drinking water source to point or nonpoint source contamination.

(IV) Elevated nitrate levels as an indicator of the potential for pesticide contamination.

(V) Extent of source water protection or approved wellhead protection program.

(D) *Waivers for dioxin and PCBs.* A system is granted a waiver from monitoring for dioxin and PCBs unless the Department determines that there is a source of dioxin or PCB contamination which poses a threat to a drinking water source.

(7) *Monitoring requirements for IOCs.* Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for IOCs established by the EPA under 40 CFR 141.62 (relating to maximum contaminant levels (MCLs) for inorganic contaminants), and for arsenic established by the EPA under 40

CFR 141.11 (relating to maximum contaminant levels for inorganic contaminants). Transient noncommunity water suppliers shall monitor for compliance with the MCLs for nitrate and nitrite. The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.23 (relating to inorganic chemical sampling and analytical requirements). The requirements are incorporated by reference except as modified by this chapter.

(i) *Monitoring requirements for asbestos.*

(A) *Waivers for asbestos monitoring.* A system is granted a waiver from asbestos monitoring unless the Department determines that the system's distribution system contains asbestos cement pipe and the system has not implemented optimum corrosion control measures, or the Department determines that the system's source water is vulnerable to asbestos contamination.

(B) *Initial monitoring schedule.* Community water systems and nontransient noncommunity water systems not granted a waiver under clause (A) shall monitor for compliance with the MCL for asbestos by taking one sample at each vulnerable sampling point during the first 3-year compliance period of each 9-year compliance cycle, with the initial compliance monitoring beginning not later than the calendar year beginning January 1, 1995.

(C) *Monitoring of new entry points.* New entry points which begin operation after December 31, 1995, shall conduct initial monitoring during the first compliance period of

the first compliance cycle after the entry point begins serving the public, if the Department determines that a waiver cannot be granted in accordance with clause (A).

(D) *Repeat monitoring for systems that detect asbestos.* If a sample exceeds the MCL for asbestos, the monitoring at that sampling point shall be continued quarterly beginning in the quarter following the MCL violation. After four consecutive quarterly samples less than the MCL at that entry point, the required monitoring is reduced to one sample at that entry point during the first 3-year compliance period of each subsequent 9-year compliance cycle, if treatment has not been installed to remove asbestos from the source water. Compliance monitoring at entry points at which treatment has been installed to remove asbestos from source water shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(ii) *Monitoring requirements for nitrate and nitrite.* The following compliance monitoring for nitrite is not required at entry points receiving water which has been disinfected with free chlorine, chlorine dioxide or ozone:

(A) *Initial monitoring schedule.* A public water system shall begin new monitoring for nitrate and nitrite by taking one annual sample at each groundwater entry point to the system beginning during the year beginning January 1, 1993. Community water systems and nontransient noncommunity water systems with surface water sources shall monitor quarterly at each surface water entry point for nitrate and nitrite beginning during the quarter beginning January 1, 1993. Transient noncommunity water systems shall monitor each surface water entry point by taking one annual sample beginning during the year beginning January 1, 1993.

(B) *Monitoring of new entry points.* New community and nontransient noncommunity surface water entry points which begin serving the public after the first calendar quarter of a year and did not detect levels of nitrate or nitrite equal to or greater than 50% of the MCL during new source sampling shall begin initial monitoring for nitrate and nitrite during the first calendar quarter of the year after the entry point begins serving the public. New community and nontransient noncommunity groundwater and surface water entry points at which nitrate or nitrite is detected at levels equal to or greater than 50% of the MCL during new source sampling shall begin initial quarterly monitoring the first quarter the entry point begins serving the public. New community and nontransient noncommunity groundwater entry points at which nitrate and nitrite are not detected at levels equal to or greater than 50% of the MCL, and all transient noncommunity entry points, shall begin initial annual monitoring during the first new calendar year after the entry point begins serving the public.

(C) *Repeat monitoring for systems with nitrate or nitrite levels equal to or greater than 50% of the MCL.*

(I) For entry points at which initial monitoring results or subsequent monitoring indicate nitrate or nitrite levels equal to or greater than 50% of the MCL, community and nontransient noncommunity water systems shall begin quarterly monitoring the quarter following detection at that level and continue quarterly monitoring for both nitrate and nitrite, unless reduced monitoring is granted in accordance with subclause (III).

(II) For entry points at which initial monitoring results or subsequent monitoring indicate nitrate or nitrite levels greater than the MCL, transient noncommunity systems

shall begin quarterly monitoring the quarter following detection at that level and continue quarterly monitoring for both nitrate and nitrite, unless reduced monitoring is granted in accordance with subclause (IV).

(III) After four consecutive quarterly samples at an entry point for a community or nontransient noncommunity system indicate nitrate and nitrite levels in each sample are less than 50% of the MCLs, the required compliance monitoring is reduced to one sample per year at the entry point. Annual monitoring shall be conducted during the calendar quarter in which the consecutive quarterly monitoring indicated that the highest levels of contamination were present, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(IV) After four consecutive quarterly samples at an entry point for a transient noncommunity system indicate nitrate and nitrite levels in each sample are less than the MCLs, the required compliance monitoring is reduced to one sample per year at the entry point. Annual monitoring shall be conducted during the calendar quarter in which the consecutive quarterly monitoring indicated that the highest levels of contamination were present, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(V) For nitrate or nitrite sample results in excess of the MCLs, the water supplier shall take a confirmation sample within 24 hours of having received the original sample result. Noncommunity water systems for which an alternate nitrate level has been approved by the Department in accordance with 40 CFR 141.11(d) are not required to collect a confirmation sample if only the nitrate MCL is exceeded and nitrate is not in

excess of the alternate nitrate level. If the alternate nitrate level is exceeded, the water supplier shall collect a confirmation sample within 24 hours after being advised by the certified laboratory performing the analysis that the compliance sample exceeded 20 mg/l for nitrate. Confirmation monitoring shall be completed by the deadline for compliance monitoring. Quarterly performance monitoring is required for nitrate and nitrite at entry points where treatment has been installed to remove nitrate or nitrite.

(D) *Repeat monitoring for systems with nitrate and nitrite levels less than 50% of the MCLs.* For entry points at which initial monitoring results indicate nitrate and nitrite levels in each sample are less than 50% of the MCLs, nitrate and nitrite monitoring shall be repeated annually during the calendar quarter in which the water supplier anticipates the highest levels of contamination, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(iii) *Monitoring requirements for antimony, arsenic, barium, beryllium, cadmium, cyanide, chromium, fluoride, mercury, nickel, selenium and thallium.*

(A) *Initial monitoring schedule.* Community water systems and nontransient noncommunity water systems shall monitor each surface water entry point annually beginning during the year beginning January 1, 1993, and shall monitor each groundwater entry point once every 3 years beginning during the year beginning January 1, 1994.

(B) *Monitoring of new entry points.* New groundwater entry points which begin operation after December 31, 1994, shall begin initial monitoring in accordance with the

schedule in clause (A)—that is, 1997, and so forth. New surface water entry points shall begin initial annual monitoring during the first new calendar year after the entry point begins serving the public.

(C) *Repeat monitoring for entry points at which an IOC MCL is exceeded.*

(I) For entry points at which initial monitoring results or subsequent monitoring indicates an IOC level in excess of the MCL, monitoring shall be repeated quarterly beginning the quarter following detection at that level for each IOC in excess of an MCL, until reduced monitoring is granted in accordance with subclause (II).

(II) After analyses of four consecutive quarterly samples at an entry point where treatment has not been installed to comply with an IOC MCL indicate that contaminant levels are less than the MCLs, the required monitoring for each IOC less than the MCL is reduced to the frequencies stated in clause (A). This reduced monitoring option does not apply to entry points at which treatment has been installed for IOC removal. Compliance monitoring for IOCs for which treatment has been installed to comply with an MCL shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(III) A confirmation sample shall be collected and analyzed for each IOC listed under 40 CFR 141.11(b) or 141.62(b) which is detected at a level in excess of its MCL during annual or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of notification by the certified laboratory performing the analysis that an MCL has been exceeded. The average of the results of the original and

the confirmation samples will be used to determine compliance. Confirmation monitoring shall be completed by the deadline specified for IOC compliance monitoring.

(D) *Waivers for IOC monitoring.* Except when treatment has been installed to remove the IOC, after three consecutive rounds of quarterly, annual or triennial monitoring indicate the contaminant level for an IOC is below the MCL in all samples at an entry point, routine monitoring for the remainder of the compliance cycle for that IOC is waived and the required monitoring for the IOC is reduced to one sample per 9-year compliance cycle at that entry point. Reduced monitoring shall be conducted during the first monitoring period of the next monitoring cycle. A waiver is effective for one compliance cycle and may be renewed in each subsequent compliance cycle.

(E) *Operational monitoring for fluoride.* Public water suppliers who fluoridate shall conduct operational monitoring for fluoride daily.

(8) *Monitoring requirements for public water systems that obtain finished water from another public water system.*

(i) Consecutive water suppliers shall monitor for compliance with the MCL for microbiological contaminants at the frequency established by the EPA and incorporated by reference into this chapter.

(ii) Community consecutive water suppliers shall:

(A) Monitor for compliance with the MCL for total trihalomethanes (TTHMs) [at the frequency established by the EPA and incorporated by reference into this chapter] ESTABLISHED UNDER 40 CFR 141.12 (RELATING TO MAXIMUM CONTAMINANT LEVELS FOR TOTAL TRIHALOMETHANES) IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR 141.30 (RELATING TO TOTAL TRIMALOMETHANES SAMPLING, ANALYTICAL AND OTHER REQUIREMENTS) if the system does one of the following:

(I) Serves more than 10,000 persons.

(II) Obtains finished water from another public water system serving more than 10,000 persons.

(B) Monitor the distribution system for compliance with the MCL for asbestos at the frequency indicated in paragraph (7)(i), when the Department determines that the system's distribution system contains asbestos cement pipe and optimum corrosion control measures have not been implemented.

(iii) Consecutive water suppliers are exempt from conducting monitoring for the MCLs for VOCs, SOCs and IOCs if the public water system from which the finished water is obtained complies with paragraphs (5)—(7), except that asbestos monitoring is required in accordance with subparagraph (ii)(B).

(iv) For a public water system which is not a consecutive water system, the exemption in subparagraph (iii) applies to entry points which obtain finished water from another public water system.

(v) A public water supplier that obtains finished water from another permitted public water system using surface water sources shall, beginning May 16, 1992, measure the residual disinfectant concentration at representative points in the distribution system at least as frequently as the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(vi) COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT PROVIDE FINISHED WATER THAT CONTAINS A CHEMICAL DISINFECTANT OR OXIDANT SHALL COMPLY WITH THE MONITORING REQUIREMENTS FOR DISINFECTION BYPRODUCTS AND DISINFECTANT RESIDUALS IN PARAGRAPHS (12)(i)--(iii) AND (13).

(9) *Monitoring requirements for POE devices.* A public water supplier using a POE device shall, in addition to the monitoring requirements specified in paragraphs (1)—(8), conduct monitoring on the devices installed. As a minimum, the monitoring shall include the MCLs for which the POE device is intended to treat and monthly microbiological monitoring. The Department may allow the water supplier to reduce the frequency of microbiological monitoring based upon historical performance. Except for microbiological contaminants, monitoring shall be performed quarterly on 25% of the installed POE devices with the locations rotated so that each device is monitored at least once annually, unless increased monitoring is required by the Department under § 109.302.

(10) *Additional monitoring.* The Department may by written notice require a public water supplier to conduct monitoring for compliance with MCLs OR MRDLS during a specific portion of a monitoring period, if necessary to ensure compliance with the monitoring or reporting requirements in this chapter.

(11) *Monitoring requirements for entry points that do not provide water continuously.* Entry points from which water is not provided during every quarter of the year shall monitor in accordance with paragraphs (5)—(7), except that monitoring is not required during a quarter when water is not provided to the public, unless special monitoring is required by the Department under § 109.302.

(12) *MONITORING REQUIREMENTS FOR DISINFECTION BYPRODUCTS AND DISINFECTION BYPRODUCT PRECURSORS.* COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE A CHEMICAL DISINFECTANT OR OXIDANT, OR PROVIDE FINISHED WATER THAT CONTAINS A CHEMICAL DISINFECTANT OR OXIDANT, SHALL MONITOR FOR DISINFECTION BYPRODUCTS. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE AT LEAST 10,000 PERSONS SHALL BEGIN MONITORING BY JANUARY 1, 2002. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE FEWER THAN 10,000 PERSONS, OR SYSTEMS THAT USE GROUNDWATER SOURCES, SHALL BEGIN MONITORING BY JANUARY 1, 2004. SYSTEMS MONITORING FOR DISINFECTION BYPRODUCTS AND DISINFECTION BYPRODUCT PRECURSORS SHALL TAKE ALL SAMPLES DURING NORMAL OPERATING CONDITIONS. SYSTEMS MONITORING FOR DISINFECTION

BYPRODUCTS AND DISINFECTION BYPRODUCT PRECURSORS MAY USE ONLY DATA COLLECTED UNDER THIS CHAPTER TO QUALIFY FOR REDUCED MONITORING. COMPLIANCE WITH THE MCLS AND MONITORING REQUIREMENTS FOR TTHMS, HAA5, CHLORITE (WHERE APPLICABLE) AND BROMATE (WHERE APPLICABLE) SHALL BE DETERMINED IN ACCORDANCE WITH 40 CFR 141.132 AND 141.133 (RELATING TO MONITORING REQUIREMENTS; AND COMPLIANCE REQUIREMENTS) WHICH ARE INCORPORATED HEREIN BY REFERENCE.

(i) *TTHMS AND HAA5.*

(A) *ROUTINE MONITORING.*

(I) SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES SHALL MONITOR AS FOLLOWS:

(-a-) SYSTEMS SERVING AT LEAST 10,000 PERSONS SHALL TAKE AT LEAST FOUR SAMPLES PER **[MONTH] QUARTER** PER TREATMENT PLANT. AT LEAST 25% OF ALL SAMPLES COLLECTED EACH QUARTER SHALL BE COLLECTED AT LOCATIONS REPRESENTING MAXIMUM RESIDENCE TIME**[, WITH THE REMAINDER OF THE SAMPLES REPRESENTING LOCATIONS]. THE REMAINING SAMPLES SHALL BE TAKEN AT LOCATIONS THAT ARE REPRESENTATIVE OF THE ENTIRE DISTRIBUTION SYSTEM AND THAT ARE REPRESENTATIVE** OF AT LEAST AVERAGE RESIDENCE TIME.

(-b-) SYSTEMS SERVING FROM 500 TO 9,999 PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER QUARTER PER TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME.

(-c-) SYSTEMS SERVING FEWER THAN 500 PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER YEAR PER TREATMENT PLANT DURING THE MONTH OF WARMEST WATER TEMPERATURE. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. IF THE SAMPLE, OR AVERAGE OF ALL SAMPLES, EXCEEDS EITHER A TTHM OR HAA5 MCL, THEN THE SYSTEM SHALL TAKE AT LEAST ONE SAMPLE PER QUARTER PER TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. THE SYSTEM MAY REDUCE THE SAMPLING FREQUENCY BACK TO ONE SAMPLE PER YEAR PER TREATMENT PLANT IN ACCORDANCE WITH THE REDUCED MONITORING CRITERIA OF CLAUSE (B).

(-d-) IF A SYSTEM SAMPLES MORE FREQUENTLY THAN THE MINIMUM REQUIRED IN ITEMS (-a-)--(-c-), AT LEAST 25% OF ALL SAMPLES COLLECTED EACH QUARTER SHALL BE COLLECTED AT LOCATIONS REPRESENTING MAXIMUM RESIDENCE TIME, WITH THE REMAINDER OF THE SAMPLES REPRESENTING LOCATIONS OF AT LEAST AVERAGE RESIDENCE TIME.

(II) SYSTEMS THAT USE GROUNDWATER SOURCES SHALL MONITOR AS FOLLOWS:

(-a-) SYSTEMS SERVING AT LEAST 10,000 PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER QUARTER PER TREATMENT PLANT. MULTIPLE WELLS DRAWING WATER FROM A SINGLE AQUIFER MAY BE CONSIDERED AS A SINGLE TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME.

(-b-) SYSTEMS SERVING FEWER THAN 10,000 PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER YEAR PER TREATMENT PLANT DURING THE MONTH OF WARMEST WATER TEMPERATURE. MULTIPLE WELLS DRAWING WATER FROM A SINGLE AQUIFER MAY BE CONSIDERED AS A SINGLE TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. IF THE SAMPLE, OR AVERAGE OF ALL SAMPLES, EXCEEDS EITHER A TTHM OR HAA5 MCL, THE SYSTEM SHALL TAKE AT LEAST ONE SAMPLE PER QUARTER PER TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. THE SYSTEM MAY REDUCE THE SAMPLING FREQUENCY BACK TO ONE SAMPLE PER YEAR PER TREATMENT PLANT IN ACCORDANCE WITH THE REDUCED MONITORING CRITERIA OF CLAUSE (B).

(-c-) IF A SYSTEM SAMPLES MORE FREQUENTLY THAN THE MINIMUM REQUIRED, AT LEAST 25% OF ALL SAMPLES COLLECTED EACH QUARTER SHALL BE COLLECTED AT LOCATIONS REPRESENTING MAXIMUM RESIDENCE TIME, WITH THE REMAINDER OF THE SAMPLES REPRESENTING LOCATIONS OF AT LEAST AVERAGE RESIDENCE TIME.

(B) *REDUCED MONITORING.* SYSTEMS THAT HAVE MONITORED FOR TTHMS AND HAA5 FOR AT LEAST 1 YEAR MAY REDUCE MONITORING ACCORDING TO THIS CLAUSE. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES SHALL MONITOR SOURCE WATER TOC MONTHLY FOR AT LEAST 1 YEAR PRIOR TO QUALIFYING FOR REDUCED MONITORING. THE DEPARTMENT RETAINS THE RIGHT TO REQUIRE A SYSTEM THAT MEETS THE REQUIREMENTS OF THIS CLAUSE TO RESUME ROUTINE MONITORING.

(I) SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT HAVE A SOURCE WATER ANNUAL TOC AVERAGE THAT IS NO GREATER THAN 4.0 MG/L AND AN ANNUAL TTHM AVERAGE THAT IS NO GREATER THAN 0.040 MG/L AND AN ANNUAL HAA5 AVERAGE THAT IS NO GREATER THAN 0.030 MG/L MAY REDUCE MONITORING ACCORDING TO ITEMS (-a-)--(-c-). SYSTEMS THAT QUALIFY FOR REDUCED MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.060 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.045 MG/L. SYSTEMS THAT EXCEED THESE LEVELS SHALL RESUME ROUTINE MONITORING AS PRESCRIBED IN CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING THE QUARTER IN WHICH THE SYSTEM EXCEEDS 0.060 MG/L FOR TTHMS OR 0.045 MG/L FOR HAA5.

(-a-) SYSTEMS SERVING AT LEAST 10,000 PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER QUARTER PER TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME.

[SYSTEMS ON REDUCED MONITORING ARE NOT REQUIRED TO MONITOR SOURCE WATER TOC.]

(-b-) SYSTEMS SERVING FROM 500 TO 9,999 PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER YEAR PER TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE AND AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. **[SYSTEMS ON REDUCED MONITORING ARE NOT REQUIRED TO MONITOR SOURCE WATER TOC.]**

(-c-) SYSTEMS SERVING FEWER THAN 500 PERSONS AND THAT ARE ON INCREASED MONITORING AS PRESCRIBED BY CLAUSE (A) MAY REDUCE MONITORING TO ONE SAMPLE PER YEAR PER TREATMENT PLANT. THE SAMPLE SHALL BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE AND AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. **[SYSTEMS ON REDUCED MONITORING ARE NOT REQUIRED TO MONITOR SOURCE WATER TOC.]**

(II) SYSTEMS THAT USE GROUNDWATER SOURCES MAY REDUCE MONITORING ACCORDING TO THE FOLLOWING:

(-a-) SYSTEMS SERVING AT LEAST 10,000 PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER YEAR PER TREATMENT PLANT IF THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.040 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.030 MG/L. THE SAMPLE SHALL BE TAKEN DURING THE

MONTH OF WARMEST WATER TEMPERATURE AND AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. SYSTEMS THAT QUALIFY FOR REDUCED MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.060 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.045 MG/L. SYSTEMS THAT EXCEED THESE LEVELS SHALL RESUME ROUTINE MONITORING AS PRESCRIBED IN CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING THE QUARTER IN WHICH THE SYSTEM EXCEEDS 0.060 MG/L FOR TTHMS OR 0.045 MG/L FOR HAA5.

(-b-) SYSTEMS SERVING FEWER THAN 10,000 PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER 3-YEAR CYCLE PER TREATMENT PLANT IF THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.040 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.030 MG/L FOR 2 CONSECUTIVE YEARS OR THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.020 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.015 MG/L FOR 1 YEAR. THE SAMPLE SHALL BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE WITHIN THE 3-YEAR CYCLE BEGINNING ON JANUARY 1 FOLLOWING THE QUARTER IN WHICH THE SYSTEM QUALIFIES FOR REDUCED MONITORING. THE SAMPLE SHALL BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. SYSTEMS THAT QUALIFY FOR REDUCED MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.080 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.060 MG/L. SYSTEMS THAT EXCEED THESE LEVELS SHALL RESUME ROUTINE MONITORING AS PRESCRIBED

IN CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING THE QUARTER IN WHICH THE SYSTEM EXCEEDS 0.080 MG/L FOR TTHMS OR 0.060 MG/L FOR HAA5.

(ii) *CHLORITE.* COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE CHLORINE DIOXIDE FOR DISINFECTION OR OXIDATION, OR PROVIDE FINISHED WATER THAT CONTAINS CHLORINE DIOXIDE, SHALL MONITOR FOR CHLORITE.

(A) *ROUTINE MONITORING.*

(I) *DAILY MONITORING.* SYSTEMS SHALL TAKE DAILY SAMPLES AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM. SYSTEMS THAT MUST CONDUCT ADDITIONAL MONITORING IN ACCORDANCE WITH CLAUSE (B) SHALL CONTINUE TO TAKE ROUTINE DAILY SAMPLES AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM.

(II) *MONTHLY MONITORING.* SYSTEMS SHALL TAKE A THREE-SAMPLE SET EACH MONTH IN THE DISTRIBUTION SYSTEM. THE SYSTEM SHALL TAKE ONE SAMPLE AT EACH OF THE FOLLOWING LOCATIONS: AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE; AT A LOCATION REPRESENTING AN AVERAGE RESIDENCE TIME; AND AT A LOCATION REPRESENTING A MAXIMUM RESIDENCE TIME. SYSTEMS THAT MUST CONDUCT ADDITIONAL MONITORING IN ACCORDANCE WITH SUBCLAUSE (III) MAY USE THE RESULTS OF THE ADDITIONAL MONITORING TO MEET THE MONTHLY MONITORING REQUIREMENTS OF THIS SUBCLAUSE.

(III) *ADDITIONAL MONITORING.* IF A DAILY SAMPLE AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM EXCEEDS THE CHLORITE MCL, THE SYSTEM SHALL TAKE THREE SAMPLES IN THE DISTRIBUTION SYSTEM ON THE FOLLOWING DAY. THE SYSTEM SHALL TAKE ONE SAMPLE AT EACH OF THE FOLLOWING LOCATIONS: AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE, AT A LOCATION REPRESENTING AN AVERAGE RESIDENCE TIME AND AT A LOCATION REPRESENTING A MAXIMUM RESIDENCE TIME.

(B) *REDUCED MONITORING.* CHLORITE MONITORING IN THE DISTRIBUTION SYSTEM REQUIRED BY CLAUSE (A)(II) MAY BE REDUCED TO ONE THREE-SAMPLE SET PER QUARTER AFTER 1 YEAR OF MONITORING WHERE NO INDIVIDUAL CHLORITE SAMPLE TAKEN IN THE DISTRIBUTION SYSTEM UNDER CLAUSE (A)(II) HAS EXCEEDED THE CHLORITE MCL AND THE SYSTEM HAS NOT BEEN REQUIRED TO CONDUCT ADDITIONAL MONITORING UNDER CLAUSE (A)(III). THE SYSTEM MAY REMAIN ON THE REDUCED MONITORING SCHEDULE UNTIL EITHER ANY OF THE THREE INDIVIDUAL CHLORITE SAMPLES TAKEN QUARTERLY IN THE DISTRIBUTION SYSTEM EXCEEDS THE CHLORITE MCL OR THE SYSTEM IS REQUIRED TO CONDUCT ADDITIONAL MONITORING UNDER CLAUSE (A)(III), AT WHICH TIME THE SYSTEM SHALL REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A).

(iii) *BROMATE.* COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE OZONE FOR DISINFECTION OR

OXIDATION, OR PROVIDE FINISHED WATER THAT CONTAINS OZONE, SHALL MONITOR FOR BROMATE.

(A) *ROUTINE MONITORING.* SYSTEMS SHALL TAKE ONE SAMPLE PER MONTH FOR EACH TREATMENT PLANT THAT USES OZONE. SYSTEMS SHALL TAKE THE MONTHLY SAMPLE AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM WHILE THE OZONATION SYSTEM IS OPERATING UNDER NORMAL CONDITIONS.

(B) *REDUCED MONITORING.* SYSTEMS REQUIRED TO ANALYZE FOR BROMATE MAY REDUCE MONITORING FROM MONTHLY TO QUARTERLY PROVIDED THAT THE SYSTEM DEMONSTRATES THAT THE AVERAGE SOURCE WATER BROMIDE CONCENTRATION IS LESS THAN 0.05 MG/L BASED UPON REPRESENTATIVE MONTHLY BROMIDE MEASUREMENTS FOR 1 YEAR. SYSTEMS ON REDUCED MONITORING SHALL CONTINUE TO TAKE MONTHLY SAMPLES FOR SOURCE WATER BROMIDE. SYSTEMS MAY REMAIN ON REDUCED BROMATE MONITORING UNTIL THE RUNNING ANNUAL AVERAGE SOURCE WATER BROMIDE CONCENTRATION, COMPUTED QUARTERLY, IS EQUAL TO OR GREATER THAN 0.05 MG/L BASED UPON REPRESENTATIVE MONTHLY MEASUREMENTS, AT WHICH TIME THE SYSTEM SHALL REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A).

(iv) *DISINFECTION BYPRODUCT PRECURSORS.* SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT USE CONVENTIONAL FILTRATION SHALL MONITOR FOR DISINFECTION BYPRODUCT PRECURSORS.

(A) *ROUTINE MONITORING.* SYSTEMS SHALL TAKE MONTHLY SAMPLES OF THE SOURCE WATER ALKALINITY, THE SOURCE WATER TOC AND **[THE COMBINED FILTER EFFLUENT] POST-SEDIMENTATION** TOC FOR EACH TREATMENT PLANT THAT USES CONVENTIONAL FILTRATION. **POST-SEDIMENTATION TOC CAN BE TAKEN AT ANY POINT BETWEEN SEDIMENTATION EFFLUENT AND THE ENTRY POINT TO THE DISTRIBUTION SYSTEM.** THE THREE SAMPLES SHALL BE TAKEN CONCURRENTLY AND AT A TIME THAT IS REPRESENTATIVE OF BOTH NORMAL OPERATING CONDITIONS AND INFLUENT WATER QUALITY.

(B) *REDUCED MONITORING.* SYSTEMS WITH AN AVERAGE **[TREATED WATER] POST-SEDIMENTATION** TOC OF LESS THAN 2.0 MG/L FOR 2 CONSECUTIVE YEARS, OR LESS THAN 1.0 MG/L FOR 1 YEAR, MAY REDUCE MONITORING FOR SOURCE WATER ALKALINITY, SOURCE WATER TOC AND **[COMBINED FILTER EFFLUENT] POST-SEDIMENTATION** TOC FROM MONTHLY TO QUARTERLY FOR EACH APPLICABLE TREATMENT PLANT. THE SYSTEM SHALL REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A) IN THE MONTH FOLLOWING THE QUARTER WHEN THE ANNUAL AVERAGE **[TREATED WATER] POST-SEDIMENTATION** TOC IS NOT LESS THAN 2.0 MG/L.

(C) *EARLY MONITORING.* SYSTEMS MAY BEGIN MONITORING TO DETERMINE WHETHER THE TOC REMOVAL REQUIREMENTS OF 40 CFR 141.135(b)(1) (RELATING TO ENHANCED COAGULATION AND ENHANCED SOFTENING PERFORMANCE REQUIREMENTS) CAN BE MET 12 MONTHS PRIOR TO THE COMPLIANCE DATE FOR THE SYSTEM. THIS MONITORING IS NOT REQUIRED AND FAILURE TO MONITOR

DURING THIS PERIOD IS NOT A VIOLATION. HOWEVER, ANY SYSTEM THAT DOES NOT MONITOR DURING THIS PERIOD, AND THEN DETERMINES IN THE FIRST 12 MONTHS AFTER THE COMPLIANCE DATE THAT IT IS NOT ABLE TO MEET THE REQUIREMENTS OF 40 CFR 141.135(b)(1) AND MUST THEREFORE APPLY FOR ALTERNATE MINIMUM TOC REMOVAL REQUIREMENTS UNDER 40 CFR 141.135(b)(4) IS NOT ELIGIBLE FOR RETROACTIVE APPROVAL OF THE ALTERNATE MINIMUM TOC REMOVAL REQUIREMENTS AND IS IN VIOLATION. SYSTEMS MAY APPLY FOR ALTERNATE MINIMUM TOC REMOVAL REQUIREMENTS ANY TIME AFTER THE COMPLIANCE DATE.

(13) *MONITORING REQUIREMENTS FOR DISINFECTANT RESIDUALS.* COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE A CHEMICAL DISINFECTANT OR OXIDANT, OR PROVIDE FINISHED WATER THAT CONTAINS A CHEMICAL DISINFECTANT OR OXIDANT, SHALL MONITOR FOR DISINFECTANT RESIDUALS. TRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE CHLORINE DIOXIDE AS EITHER A DISINFECTANT OR OXIDANT SHALL MONITOR FOR CHLORINE DIOXIDE DISINFECTANT RESIDUAL. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE AT LEAST 10,000 PERSONS SHALL BEGIN MONITORING BY JANUARY 1, 2002. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE FEWER THAN 10,000 PERSONS, OR SYSTEMS THAT USE GROUNDWATER SOURCES, SHALL BEGIN MONITORING BY JANUARY 1, 2004. SYSTEMS MONITORING FOR DISINFECTANT RESIDUALS SHALL TAKE ALL SAMPLES DURING NORMAL OPERATING CONDITIONS. COMPLIANCE WITH THE MRDLS AND MONITORING REQUIREMENTS

FOR CHLORINE, CHLORAMINES AND CHLORINE DIOXIDE (WHERE APPLICABLE) SHALL BE DETERMINED IN ACCORDANCE WITH 40 CFR 141.132 AND 141.133 (RELATING TO MONITORING REQUIREMENTS; AND COMPLIANCE REQUIREMENTS) WHICH ARE INCORPORATED HEREIN BY REFERENCE.

(i) *CHLORINE AND CHLORAMINES.* SYSTEMS SHALL MEASURE THE RESIDUAL DISINFECTANT LEVEL AT THE SAME POINTS IN THE DISTRIBUTION SYSTEM AND AT THE SAME TIME THAT TOTAL COLIFORMS ARE [SAMPLES]SAMPLED, AS SPECIFIED IN PARAGRAPH (3). SYSTEMS THAT USED EITHER SURFACE WATER OR GUDI SOURCES MAY USE THE RESULTS OF RESIDUAL DISINFECTANT CONCENTRATION SAMPLING CONDUCTED UNDER PARAGRAPH (1) OR (2) IN LIEU OF TAKING SEPARATE SAMPLES.

(ii) *CHLORINE DIOXIDE.*

(A) *ROUTINE MONITORING.* SYSTEMS SHALL TAKE ONE SAMPLE PER DAY AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM. FOR ANY DAILY SAMPLE THAT EXCEEDS THE MRDL, THE SYSTEM SHALL CONDUCT ADDITIONAL MONITORING AS SPECIFIED IN CLAUSE (B) IN ADDITION TO THE SAMPLE REQUIRED AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM. COMPLIANCE SHALL BE BASED ON CONSECUTIVE DAILY SAMPLES COLLECTED BY THE SYSTEM UNDER THIS CLAUSE.

(B) *ADDITIONAL MONITORING.* IF A DAILY SAMPLE AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM EXCEEDS THE CHLORINE DIOXIDE MRDL, THE SYSTEM

SHALL TAKE THREE SAMPLES IN THE DISTRIBUTION SYSTEM ON THE FOLLOWING DAY. IF CHLORINE DIOXIDE OR CHLORAMINES ARE USED TO MAINTAIN A DISINFECTANT RESIDUAL IN THE DISTRIBUTION SYSTEM, OR IF CHLORINE IS USED TO MAINTAIN A DISINFECTANT RESIDUAL IN THE DISTRIBUTION SYSTEM AND THERE ARE NO DISINFECTANT ADDITION POINTS AFTER THE ENTRANCE TO THE DISTRIBUTION SYSTEM, THE SYSTEM SHALL TAKE THREE SAMPLES AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE, AT INTERVALS OF AT LEAST 6 HOURS. IF CHLORINE IS USED TO MAINTAIN A DISINFECTANT RESIDUAL IN THE DISTRIBUTION SYSTEM AND THERE ARE ONE OR MORE DISINFECTION ADDITION POINTS AFTER THE ENTRANCE TO THE DISTRIBUTION SYSTEM, THE SYSTEM SHALL TAKE ONE SAMPLE AT EACH OF THE FOLLOWING LOCATIONS: AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE, AT A LOCATION REPRESENTING AN AVERAGE RESIDENCE TIME, AND AT A LOCATION REPRESENTING A MAXIMUM RESIDENCE TIME.

§ 109.302. Special monitoring requirements.

(a) The Department may require a public water supplier to conduct monitoring in addition to that required by § 109.301 (relating to general monitoring requirements) if the Department has reason to believe the public water system is not in compliance with the MCL, MRDL or treatment technique requirement for the contaminant.

(b) The Department may require a public water supplier to conduct additional monitoring to provide information on contamination of the water supply where a

potential health hazard may exist in the water supply and monitoring required under § 109.301 may not be adequate to protect the public health.

(c) The Department may require a public water supplier to conduct special monitoring for an unregulated contaminant if the Department has reason to believe the contaminant is present in the public water system and creates a health risk to the users of the public water system.

(d) The Department will provide a schedule for sampling, instructions for sampling methods and handling samples, and analytical procedures to be followed by public water systems required to perform special monitoring.

(e) The Department may designate special monitoring requirements on a case-by-case basis for experimental facilities.

(f) The special monitoring requirements for unregulated contaminants established by the EPA under 40 CFR 141.40 (relating to special monitoring for organic chemicals) are incorporated by reference. Community water systems andnontransient noncommunity water systems serving 150 or more service connections or 500 or more persons shall monitor for the unregulated contaminants listed by the EPA under 40 CFR 141.40(n)(11) in accordance with the initial monitoring schedule for SOCs in § 109.301(7), and for sulfate listed under 40 CFR 141.40(n)(12). For sulfate, one sample shall be taken at each entry point by December 31, 1995. The Department will grant a waiver from conducting monitoring for an unregulated contaminant under 40 CFR 141.40(n)(11) based on a determination that the contaminant was not previously used, transported, stored or

disposed of in the watershed or wellhead protection area Zones I and II, or the source is not susceptible to contamination by the contaminant based on the factors listed under § 109.301(6)(v). Entry points obtaining finished water from another public water system are exempt from monitoring that finished water for the unregulated contaminants listed by the EPA under 40 CFR 141.40(n)(11) and (12).

(g) To enable the Department to determine if a public water supplier is using a source directly influenced by surface water, the Department may require a public water supplier to conduct monitoring to evaluate the direct influence of surface water upon the source of supply. Monitoring shall be conducted for at least 6 months to include both the wet and dry periods of the year. Samples shall be taken from the collection facilities and measurements shall include the following:

(1) Daily field measurement of temperature, pH, specific conductance and turbidity.

(2) Daily measurement of water level, or flow, and precipitation necessary to establish climatic conditions.

(3) Weekly measurements for total coliform.

(4) Other measurements as required by the Department to evaluate the direct influence of surface water upon the source of supply.

(h) The Department may reduce or eliminate the monitoring required by subsection (g) if the public water supplier demonstrates and the Department determines that the source of supply is not directly influenced by surface water.

§ 109.303. Sampling requirements.

(a) The samples taken to determine a public water system's compliance with MCLs OR MRDLS or to determine compliance with monitoring requirements shall be taken at the locations identified in §§ 109.301 and 109.302 (relating to general monitoring requirements; and special monitoring requirements), or as follows:

(1) Samples for determining compliance with the turbidity MCL shall be taken at each entry point associated with a surface water source that the Department has determined shall be filtered.

(2) Samples for determining compliance with the total coliform MCL shall be taken at regular intervals throughout the monitoring period at sites which are representative of water throughout the distribution system according to an approved written sample siting plan as specified under § 109.701(a)(5) (relating to reporting and recordkeeping).

(3) Samples for determining compliance with the fluoride MCL shall be taken at each entry point.

(4) Samples for determining compliance with MCLs for organic contaminants listed by the EPA under 40 CFR 141.61 (relating to maximum contaminant levels for organic contaminants) and inorganic contaminants listed by the EPA under 40 CFR 141.62 (relating to maximum contaminant levels (MCLs) for inorganic contaminants) and with the special monitoring requirements for unregulated contaminants under § 109.302(f)

shall be taken at each entry point to the distribution system after an application of treatment during periods of normal operating conditions. If a system draws water from more than one source and the sources are combined prior to distribution, the system shall sample at the entry point where the water is representative of combined sources being used during normal operating conditions.

(5) Asbestos sampling points shall be at the distribution tap where asbestos contamination is expected to be the greatest based on the presence of asbestos cement pipe and lack of optimum corrosion control treatment, and at the entry point for each source which the Department has reason to believe may contain asbestos, except that a collected distribution sample which is representative of a source may be substituted for a required entry point sample.

(b) The samples taken to determine a public water system's compliance with treatment technique and performance monitoring requirements shall be taken at a point that is as close as practicable to each treatment technique process and that is not influenced by subsequent treatment processes or appurtenances.

(c) For the purpose of determining compliance with the monitoring and analytical requirements established under this subchapter, and Subchapter K (relating to lead and copper), the Department will consider only samples analyzed by a laboratory certified by the Department, except that measurements for turbidity, fluoridation operation, residual disinfectant concentration, temperature, pH, alkalinity, orthophosphates, silica, calcium and conductivity may be performed by a person meeting the requirements of § 109.704 (relating to operator certification).

(d) Public water suppliers shall assure that samples for laboratory analysis are properly collected and preserved, are collected in proper containers, do not exceed maximum holding times between collection and analysis and are handled in accordance with guidelines governing quality control which may be established by the Department. A public water supplier who utilizes a certified laboratory for sample collection as well as analysis satisfies the requirements of this subsection.

(e) Compliance monitoring samples for the VOCs listed under 40 CFR 141.61(a) shall be collected by a person properly trained by a laboratory certified by the Department to conduct VOC or vinyl chloride analysis.

(f) Compliance monitoring samples for the contaminants listed under 40 CFR 141.40(n), 141.61(a) and (c) and 141.62 may be composited in accordance with 40 CFR 141.23(a)(4) and 141.24(f)(14), (g)(7) and (h)(10) (relating to inorganic chemical sampling and analytical requirements; and organic chemicals other than total trihalomethanes, sampling and analytical requirements) except:

(1) Samples from groundwater entry points may not be composited with samples from surface water entry points.

(2) Samples used in compositing shall be collected in duplicate.

(3) If a contaminant listed under 40 CFR 141.61(a) or (c) is detected at an entry point, samples from that entry point may not be composited for subsequent or repeat monitoring requirements.

(4) Samples obtained from an entry point which contains water treated by a community water supplier or a nontransient noncommunity water supplier to specifically meet an MCL for an organic contaminant listed under 40 CFR 141.61(a) or (c) or an MCL for an inorganic contaminant listed under 40 CFR 141.62 may not be composited with other entry point samples.

(g) A compliance sample required under § 109.301(9) shall be taken at a free flowing tap in the house, building or facility where the POE device is located or at a monitoring point approved by the Department on the effluent side of the POE device.

§ 109.304. Analytical requirements.

(a) Sampling[, monitoring] and analysis shall be performed in accordance with analytical techniques adopted by the EPA under the Federal act or methods approved by the Department.

(b) An alternate analytical technique may be employed with the written approval of the Department and the concurrence of the Administrator. An alternate technique will be accepted only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with MCLs OR MRDLS or treatment technique requirements. The use of the alternate analytical technique may not decrease the frequency of monitoring required by this subchapter.

Subchapter D. PUBLIC NOTIFICATION

§ 109.401. General public notification requirements.

For the purposes of this section, the term "acute violation" means a violation of the MCL for a contaminant or another condition that may pose an acute risk to human health. Acute violations include, but are not limited to: the MCL for nitrate or nitrite is exceeded, the turbidity performance level which is required to be measured to determine compliance with § 109.202(c) (relating to State MCLs, MRDLS and treatment technique requirements) or the turbidity level at an unfiltered surface water source exceeds 5 NTU, the MCL for total coliforms is exceeded due to the presence of fecal coliforms or E. coli in the water distribution system, THE MRDL FOR CHLORINE DIOXIDE IS EXCEEDED IN THE DISTRIBUTION SYSTEM 1 DAY AFTER AN MRDL EXCEEDANCE AT THE ENTRY POINT, FAILURE TO MONITOR IN THE DISTRIBUTION SYSTEM ONE DAY AFTER A CHLORINE DIOXIDE MRDL EXCEEDANCE AT THE ENTRY POINT, and the occurrence of a waterborne disease outbreak.

(1) The public water supplier shall give public notification in accordance with this section when one of the following occurs:

(i) The public water system is not in compliance with the applicable primary MCLs, MRDLS or treatment technique requirements in Subchapter B (relating to MCLs, MRDLS or treatment technique requirements).

(ii) The public water supplier fails to perform monitoring and analyses as required by Subchapter C (relating to monitoring requirements).

(iii) The public water system is subject to a variance or exemption granted under Subchapter I (relating to variances and exemptions issued by the Department).

(iv) The public water supplier fails to comply with the requirements prescribed by a variance or exemption.

(2) A community water supplier, except for violations involving POE devices, required to provide public notification shall, at a minimum, provide public notification in a form approved by the Department as follows:

(i) The water supplier shall publish the notice within 14 days on 3 consecutive days in a daily newspaper of general circulation within the area served by the community water system and at least once every 3 months so long as the violation, variance or exemption continues. If the area served by a community water system is not served by a daily newspaper of general circulation, the water supplier shall publish the notice on 3 consecutive weeks in a weekly newspaper of general circulation serving the area. If no weekly or daily newspaper of general circulation serves the area, notice shall be given by posting or by hand delivery to each customer in accordance with the following:

(A) Within 72 hours after a water supplier learns of an acute violation.

(B) Within 14 days after the supplier learns of any other violation or is granted a variance or exemption.

(C) If posted, the following shall apply:

(I) The notice shall remain in place continuously so long as the violation, variance or exemption continues.

(II) If the violation has been corrected prior to the start of posting, the notice shall be posted for a minimum of 14 days.

(III) The notice shall be displayed in prominent public places within the area served by the community water system.

(ii) The water supplier by mail delivery, either by direct mail or with the water bill, or by hand delivery shall give direct written notice to each customer within 45 days after the water supplier learns of the violation or is granted a variance or exemption. Additional written notice shall be sent or hand delivered to each customer at least once every 3 months so long as the violation, variance or exemption continues.

(iii) In addition to the publication of the notice in accordance with [the provisions of] paragraph (2)(i), the water supplier, except one required to post or hand deliver the notice under paragraph (2)(i)(A) or (B) shall furnish a copy of the notice to the radio and television stations serving the area after the supplier learns of an acute violation or another primary MCL <u>OR MRDL</u> violation under paragraph (1)(i) in accordance with the following schedule:

(A) Within 72 hours of an acute violation.

(B) Within 7 days of a violation of another primary MCL <u>OR MRDL</u>.

(iv) The water supplier having an outstanding violation if public notification is necessitated under paragraph (1)(i), (iii) or (iv) shall give a copy of the most recent public

notification to new or transferred billing units or new hookups prior to or at the time service begins.

(v) If a water supplier required to provide public notification serves a billing unit, such as an apartment complex, school, hospital, nursing home or business, in which there are consumers who are not directly notified by the supplier, the following language shall be included in the notice:

"If you, as our customer, have received this notice and there are consumers receiving water from you, such as tenants, residents, patients, students or employees, you should make this notice available to them by posting it in a conspicuous location and by direct hand or mail delivery."

(vi) A consecutive water supplier or a public water supplier that is receiving part of the water it serves from another public water system that experiences a condition described in paragraph (1)(i), (iii) or (iv) shall provide notice to its customers in accordance with this section on receipt of the notification from the public water system supplying the water. The requirements of paragraph (2)(i) and (iii) may be met for a public water supplier purchasing the water if the public water system that is supplying the water includes the name of the public water system being served in the public notification it issues to comply with paragraph (2)(i) and (iii).

(3) A noncommunity water supplier required to provide public notification shall, at a minimum:

(i) Post the notice in accordance with the following schedule:

(A) Within 72 hours after the supplier learns of an acute violation.

(B) Within 14 days after the supplier learns of another violation or is granted a variance or exemption.

(ii) The notice shall remain in place continuously so long as the violation, variance or exemption continues or for a minimum of 14 days, if the violation has been corrected prior to the start of posting.

(iii) The water supplier shall post the notice in conspicuous locations where it can be seen by its customers.

(4) Public water suppliers that have a violation under paragraph (1)(i) or (ii) involving a POE device shall provide public notification in a form approved by the Department as follows:

(i) Community water suppliers shall, within 7 days after learning of the violation, provide direct written notice to each customer where a violation has occurred and provide written notices at least once every 2 months for as long as the violation continues.

(ii) Noncommunity water suppliers, including nontransient, noncommunity water suppliers, shall post a notice in a prominent public place within the areas served by the POE devices. The notice shall be posted continuously for as long as the violation continues.

§ 109.402. Emergency public notification.

In addition to the requirements of § 109.401 (relating to general public notification requirements), the Department may require public notice by providing a water supply warning to be given if conditions in a public water system present an imminent hazard to the public health.

(1) A public water supplier who knows that a primary MCL OR MRDL has been exceeded or a treatment technique performance standard has been violated or has reason to believe that circumstances exist which may adversely affect the quality of drinking water, including, but not limited to, source contamination, spills, accidents, natural disasters or breakdowns in treatment, shall report the circumstance to the Department within 1 hour of discovery of the problem.

(2) If the Department determines, based upon information provided by the public water supplier or other information available to the Department, that the circumstances present an imminent hazard to the public health, the public water supplier shall issue a water supply warning approved by the Department under this subsection. The public water supplier is responsible for disseminating the notice in a manner designed to inform users who may be affected by the problem.

(i) Within 4 hours of the Department's determination that an imminent hazard is present, the public water supplier shall provide the notice to newspapers, radio and television media serving the affected public, or directly notify affected users in a manner approved by the Department. The public water supplier shall also notify key public officials as designated in the public water system's emergency response plan.

(ii) The Department may require the public water supplier to further disseminate the notice in an appropriate manner which may include direct mailings, publication in newspapers or other paid advertising or postings.

(iii) A water supply warning shall be followed by further notices designed to inform the public on a continuing basis as to the expected duration of the hazard, progress toward solving the problem and measures that should be taken by users to reduce their risk. These notices shall be given at intervals and in a manner directed by the Department as long as the threat to public health continues.

(iv) The water supply warning shall continue until the Department is satisfied that no significant threat to the public health remains and approves a notice cancelling the water supply warning. The public water supplier shall be responsible for disseminating the cancellation of the water supply warning in a manner similar to the issuance of the warning.

(v) If a noncommunity water system is a place in which persons 17 years of age and under are cared for or educated, such as a school or day care center, notice issued under this subsection shall also be disseminated individually to the parent or guardian of those persons.

(3) If nitrate or nitrite sampling results exceed the MCL, and when the water supplier does not take a confirmation sample within 24 hours as required by § 109.303(7)(ii)(C)(V) (relating to sampling requirements), it will be considered that an

imminent hazard is present and the supplier shall issue a water supply warning in accordance with paragraph (2).

§ 109.403. Description and content of notice.

(a) Notice given under this subchapter shall be written in a manner reasonably designed to fully inform the users of the system.

(1) The notice shall be conspicuous and may not use technical language, small print or other methods which would frustrate the purpose of the notice.

(2) The notice shall disclose material facts regarding the subject including the nature of the problem and, when appropriate, a clear statement that an MCL, AN MRDL or a treatment technique requirement has been violated and the preventive measures that should be taken by the public.

(3) Notices shall include a balanced explanation of the significance or seriousness to the public health of the subject of the notice including potential adverse health effects, the population at risk, a clear explanation of steps taken by the supplier to correct the problem, the necessity for seeking alternative supplies, guidance on safeguards and alternatives available to users and the results of additional sampling.

(4) The notice shall include the telephone number of the owner, operator or designee of the public water system as a source of additional information concerning the notice.

(b) If appropriate or as designated by the Department, bilingual or multilingual notice shall be given.

(c) In all notices, except for those required by § 109.401(1)(ii) (relating to general public notification requirements), when providing the information on potential adverse health effects required by subsection (a)(3), the water supplier shall include language that is presently or may be established by the EPA for the contaminant under 40 CFR 141.32(e) (relating to mandatory health effects language) or 40 CFR 143.5(b) (relating to public notices for fluoride) which are incorporated by reference.

[(d) COMMUNITY WATER SYSTEMS SERVING AT LEAST 10,000 PERSONS THAT DETECT TTHM ABOVE 0.080 MG/L, BUT BELOW THE MCL IN 40 CFR 141.12 (RELATING TO MAXIMUM CONTAMINANT LEVELS FOR TOTAL TRIHALOMETHANES), AS AN ANNUAL AVERAGE, MONITORED AND CALCULATED UNDER 40 CFR 141.30 (RELATING TO TOTAL TRIHALOMETHANES SAMPLING, ANALYTICAL AND OTHER REQUIREMENTS), SHALL INCLUDE HEALTH EFFECTS LANGUAGE PRESCRIBED BY PARAGRAPH (73) OF APPENDIX C TO 40 CFR SUBPART O (RELATING TO CONSUMER CONFIDENCE REPORTS).]

Subchapter E. PERMIT REQUIREMENTS

§ 109.503. Public water system construction permits.

(a) *Permit application requirements.* An application for a public water system construction permit shall be submitted in writing on forms provided by the Department and shall be accompanied by plans, specifications, engineer's report, water quality analyses and other data, information or documentation reasonably necessary to enable the Department to determine compliance with the act and this chapter. The Department will make available to the applicant the *Public Water Supply Manual*, available from the Bureau of Water Supply and Community Health, Post Office Box 8467, Harrisburg, Pennsylvania 17105 which contains acceptable design standards and technical guidance. Water quality analyses shall be conducted by a laboratory certified under this chapter.

(1) *General requirements.* An application shall include:

(i) *Permit application signatures.* A Department permit application signed as follows:

(A) In the case of corporations, by a principal executive officer of at least the level of vice president, or an authorized representative, if the representative is responsible for the overall operation of the facility.

(B) In the case of a partnership, by a general partner.

(C) In the case of a sole proprietorship, by the proprietor.

(D) In the case of a municipal, State or other public facility, by either a principal executive officer, ranking elected official or other authorized employe.

(ii) *Plans, specifications and engineer's report.* Plans, specifications and engineer's reports shall comply with the following:

(A) The drawings, specifications and engineer's report shall be prepared by or under the supervision of a professional engineer registered to practice in this Commonwealth or in the state in which the public water system is located.

(B) The front cover or flyleaf of each set of drawings, of each copy of the engineer's report, and of each copy of specifications shall bear the signature and imprint of the seal of the registered engineer. Drawings shall bear an imprint or a legible facsimile of the seal.

(iii) *Information describing new sources.* The Department may accept approval of an out-of-State source by the agency having jurisdiction over drinking water in that state if the supplier submits adequate proof of the approval and the agency's standards are at least as stringent as this chapter. Information describing sources shall include:

(A) A comprehensive sanitary survey of the physical surroundings of each new source of raw water and its proximity to potential sources of contamination. For surface water, this information shall include a description of the watershed topography and land uses within the watershed. For systems using wells, springs or infiltration galleries, this information shall include a hydrogeological report prepared and signed by a professional geologist who has complied with the requirements of the Engineer, Land Surveyor and Geologist Registration Law (63 P. S. § § 148—158.2) describing the geology of the area including the source aquifers, overlying formations, hydrogeologic boundaries, aquifer

porosity estimates, water table contour or potentiometric surface maps depicting prepumping conditions and other information deemed necessary to evaluate the hydraulic characteristics of the aquifer and demonstrate the suitability of the proposed source. At the discretion of the Department, these requirements may be altered for a proposed well, wellfield, spring or infiltration gallery that will be pumping less than or yielding less than 100,000 gallons per day.

(B) An evaluation of the quality of the raw water from each new source. This subparagraph does not apply when the new source is finished water obtained from an existing permitted community water system unless the Department provides written notice that an evaluation is required. The evaluation shall include analysis of the following:

(I) For groundwater sources, VOCs for which MCLs have been established by the EPA under the National Primary Drinking Water Regulations at 40 CFR 141.61(a) (relating to maximum contaminant levels for organic contaminants). Vinyl chloride monitoring is required only if one or more of the two-carbon organic compounds specified under § 109.301(6)(i) (relating to general monitoring requirements) are detected. Samples for VOCs shall be collected in accordance with the provisions of § 109.303(e) (relating to sampling requirements).

(II) Except for asbestos, inorganic chemicals (IOCs) for which MCLs have been established by the EPA under the National Primary Drinking Water Regulations at 40 CFR 141.62 (relating to maximum contaminant levels for inorganic contaminants). The

new source shall be monitored for asbestos if the Department has reason to believe the source water is vulnerable to asbestos contamination.

(III) Lead.

(IV) Copper.

(V) Total coliform concentration and, if total coliform-positive, analyze for fecal coliform concentration.

(VI) SOCs.

(-a-) Alachlor, atrazine, chlordane, dibromochloropropane (DBCP), ethylene dibromide (EDB), heptachlor, heptachlor epoxide, lindane, methoxychlor, toxaphene, endrin, hexachlorobenzene, hexachlorocyclopentadiene, polychlorinated byphenyls (PCBs) and simazine unless the Department determines in writing that monitoring for one or more of the substances specified in this clause is not necessary.

(-b-) Other synthetic organic chemicals (SOCs) except for dioxin for which MCLs have been established by the EPA under the National Primary Drinking Water Regulations at 40 CFR 141.61(c) except for those SOCs for which the source is not considered vulnerable based on a vulnerability assessment conducted by the public water supplier and approved by the Department unless the Department determines in writing that monitoring for one or more of the SOCs is not necessary.

(-c-) Dioxin where there is a souce of dioxin contamination within 1,000 feet of a groundwater source or within 1 mile upstream of a surface water source.

(VII) Gross Alpha (α) and Gross Beta (ß).

(VIII) For surface water sources, total trihalomethanes.

(IX) Aluminum, chloride, color, foaming agents, iron, manganese, pH, silver, sulfate, total dissolved solids and zinc for which MCLs have been established by the EPA under the National Secondary Drinking Water Regulations at 40 CFR 143.3 (relating to secondary MCLs).

(X) Alkalinity.

(XI) Hardness.

(XII) Temperature.

(XIII) Other contaminants that the Department determines necessary to evaluate the potability of the source.

(C) An evaluation of the quantity of the raw water from each new source. Flow data shall be submitted for springs, infiltration galleries or surface water sources. Aquifer test data, including drawdown and recovery data and the derivation of hydraulic conductivity, transmissivity and storage coefficient of the aquifer, shall be submitted for wells. At the discretion of the Department, these requirements may be altered for wells or wellfields pumping less than 100,000 gallons per day. The Department may require that other information be submitted to evaluate the safe yield of the source. The safe yield is the amount of water that can be withdrawn from an aquifer without causing an undesired

result, such as adverse dewatering of an aquifer, induced potential health threats or impacts upon stream uses.

(D) A Department approved delineation of the Zone I wellhead protection area for community water system wells, springs or infiltration galleries.

(iv) *Chapter 102 requirements.* An erosion and sedimentation control plan which meets the requirements contained in Chapter 102 (relating to erosion and sediment control) when earth-moving activities are involved.

(2) *Special requirements for public water suppliers proposing to use POE devices.* Permit applications which propose the use of POE devices shall, in addition to the information required in paragraph (1), include the following:

(i) Documentation that each POE device to be used meets the certification requirements of § 109.612 (relating to POE devices).

(ii) Manufacturer's design and engineering information, including blueprints or similar drawings, which provide detailed information about the construction and operation of the treatment device and its components.

(iii) A detailed monitoring plan, subject to the Department's approval, which includes a list of the contaminants to be monitored and the frequency of monitoring.

(iv) An operation and maintenance plan, as outlined in § 109.702 (relating to operation and maintenance plan), which includes a schedule of routine maintenance to be

performed and the parameters to be monitored to determine the performance and condition of the devices.

(v) A drawing of the water supply distribution system showing each house, building or facility where POE devices are to be installed.

(vi) Proof of the right-of-access for every house, building or facility to be served by a POE device.

(3) *Business plan requirements for new community water systems.* Permit applications submitted to the Department on or after October 1, 1996, for new community water systems shall, in addition to the information required in paragraph (1), include a business plan. A new community water system is a proposed community water system or an existing system not otherwise subject to the act which becomes a community water system subject to the act as a result of an increase in the number of year-round residents or residences served. The business plan shall be submitted on forms approved by the Department. To be considered complete, the business plan shall conform to the guidelines contained in the Department's *Public Water Supply Manual* and shall consist of the following three parts:

(i) *Facilities plan.* The facilities plan shall identify the scope of the water service to be provided. In addition to the requirements of subsection (a)(1)(ii), the facilities plan shall include the following:

(A) An assessment of current and reasonably foreseeable compliance requirements that are applicable under the act based on monitoring data from the proposed sources of supply.

(B) A description of the alternatives considered and the rationale for the approach selected to providing water service. This description shall include the technical, managerial, financial, operational and local decision making rationale for the selected approach. Unless the new system is a consecutive water system, the plan shall include the rationale for creating a separate system.

(C) An engineering description of the facilities to be constructed, including the construction phases and future plans for expansion. This description shall include an estimate of the full cost of any required construction, operation and maintenance.

(ii) *Management plan.* The management plan shall specify the commitments that are needed to provide for effective management and operation of the system and shall include the following:

(A) Documentation that the applicant has the legal right and authority to take the measures necessary for the construction, operation and maintenance of the system. The evidence shall include, but is not limited to, indices of ownership where the applicant is the owner of the system or, where the applicant is not the owner, legally enforceable management contracts or agreements.

(B) An operating plan to define the tasks to be performed in managing and operating the system. The operating plan shall consist of the following:

(I) *Part 1.* A management and administrative plan.

(II) *Part 2.* An operation and maintenance plan which conforms with § 109.702 (relating to operation and maintenance plan).

(C) Assurances that the commitments needed for proper operation and management of the system will be carried out. These assurances can be given in the form of documentation of the credentials of management and operations personnel, cooperative agreements or service contracts.

(iii) *Financial plan.* The financial plan shall describe the system's revenues and cash flow for meeting the costs of construction and the costs of operation and maintenance for at least 5 full years from the date the applicant anticipates initiating system operation. At a minimum, the financial plan shall include pro forma statements for each of the 5 years including the following:

(A) Balance sheet.

(B) Income statement.

(C) Statement of cash flow.

(b) *Amendments.* A water supplier operating under a public water system permit shall obtain an amended construction permit before making a substantial modification to the public water system.

(1) A water supplier shall submit an application for an amended construction permit under the application requirements in subsection (a), if the proposed modification constitutes a major change to the public water system. Typical modifications which may be considered major changes are proposed new sources, additions or deletions of treatment techniques or processes, pumping stations and storage reservoirs.

(2) A water supplier shall submit a written request to the Department if the proposed modification constitutes a relatively minor change to the public water system. A request for an amended construction permit under this paragraph shall describe the proposed change in sufficient detail to allow the Department to adequately evaluate the proposal. Typical modifications which may be considered minor changes are changes in treatment chemicals; replacement of tank or reservoir linings or similar materials in contact with the water supply; interconnections; covering of reservoirs; construction of covered storage tanks and standpipes designed to standard specifications; transmission mains; and changes in legal status, such as transfers of ownership, incorporation or mergers.

(3) The Department determines whether a particular modification is a substantial modification and requires the construction permit to be amended under paragraph (1) or (2). A substantial modification is a modification which may affect the quality or quantity of water served to the public or may be prejudicial to the public health or safety. The Department's determination of whether the substantial modification is a major or minor change will include consideration of the expected amount of staff time required to review and process the proposal, the magnitude and complexity of the proposed change and the compliance history of the public water system.

(c) *Permit fees.*

(1) An application for a permit or a major permit amendment under subsection (a)(1), except for an application for construction or modification of corrosion control treatment facilities under § 109.1105 (relating to permit requirements), shall be accompanied by a check in the amount of $750, payable to the "Commonwealth of Pennsylvania," except a fee is not required for an application submitted by a State regulatory agency, or an application submitted for a public water system serving 100 or fewer individuals. The fees for permitting and related services under § 109.1105 for corrosion control treatment facilities are established under § 109.1108 (relating to fees).

(2) A fee is not required for an application for an emergency permit under § 109.506 (relating to emergency permits) or an amendment under subsection (b)(2).

(3) Applications for permits or major permit amendments submitted to satisfy the requirements of Subchapter B (relating to MCLs, MRDLS or treatment technique requirements) for removal of VOCs and SOCs through the construction of treatment facilities designed to achieve greater removal of contaminants than would be achieved by conventional filtration shall be accompanied by a fee of $2,500.

(d) *Department's review.*

(1) The Department will publish a notice in the *Pennsylvania Bulletin* of the applications submitted under subsection (a) or (b)(1) or § 109.507 (relating to permits for

innovative technology), providing at least 30 days for public comment from the date of publication.

(2) The Department will not accept an application for review until the application is determined to be complete. A complete application is one which includes all the information specified in this chapter and other relevant information the Department determines is necessary to enable the Department to undertake a technical review of the application.

(3) If the Department determines the permit application is incomplete, it will request the additional information in writing from the applicant within 90 calendar days of receipt of the application.

(4) The Department will grant or deny a permit within 120 calendar days of receipt of the application, or when an incomplete application was submitted, within 120 calendar days of receipt of the applicant's written response to the Department's request for additional information.

(5) Applications will be reviewed in accordance with accepted engineering and hydrogeological practices. The approval of plans, specifications, hydrogeological reports and engineer's reports is limited to the sanitary features of design and other features of public health significance.

(6) In reviewing a permit application under this chapter, the Department may consider the following:

(i) Adherence to standards in Subchapter F (relating to design and construction standards).

(ii) Compliance by the proposed project with applicable statutes administered by the Commonwealth, river basin commissions created by interstate compact or Federal environmental statutes or regulations.

(iii) Consistency with the environmental rights and values secured by PA. CONST. art. I, § 27 and with the Commonwealth's duties as trustee to conserve and maintain Pennsylvania's public natural resources.

(iv) Present conditions and the effects of reasonably foreseeable future development within the area of the project, including wellhead protection areas.

(e) *Issuance and conditions.*

(1) Issuance of a construction permit authorizes only the construction or modifications included in the permit. The permit's continuing validity is conditioned upon satisfaction of the provisions of the permit.

(2) The plans, specifications, reports and supporting documents submitted as part of the permit application become part of the permit.

(3) A permit authorizing construction or modification of water facilities shall expire within 2 years from the date of issuance unless substantial work is initiated. A permit may be renewed by the Department if the water supplier makes a written request for renewal prior to the expiration date.

§ 109.505. Requirements for noncommunity water systems.

A noncommunity water system shall obtain a construction permit under § 109.503 (relating to public water system construction permits) and an operation permit under § 109.504 (relating to public water system operation permits), unless the noncommunity water system satisfies paragraph (1) or (2). The Department retains the right to require a noncommunity water system that meets the requirements of paragraph (1) or (2) to obtain a construction and an operation permit, if, in the judgment of the Department, the noncommunity water system cannot be adequately regulated through standardized specifications and conditions. A noncommunity water system which is released from the obligation to obtain a construction and an operation permit shall comply with the other requirements of this chapter, including design, construction and operation requirements described in Subchapters F and G (relating to design and construction standards; and system management responsibilities).

(1) A noncommunity water system which holds a valid permit or license issued after December 8, 1984, under one or more of the following acts satisfies the permit requirement under the act. The licensing authority will review the drinking water facilities under this chapter when issuing permits under the following acts:

(i) The act of May 23, 1945 (P. L. 926, No. 369) (35 P. S. § § 655.1—655.13).

(ii) The Seasonal Farm Labor Act (43 P. S. § § 1301.101—1301.606).

(iii) The Public Bathing Law (35 P. S. § § 672—680d).

(2) A noncommunity water system not covered under paragraph (1) is not required to obtain a construction and an operation permit if it satisfies the following specifications and conditions:

(i) The sources of supply for the system are groundwater sources requiring treatment no greater than disinfection to provide water of a quality that meets the primary MCLs established under Subchapter B (relating to MCLs, MRDLS or treatment technique requirements).

(ii) The water supplier files a brief description of the system, including raw source quality data, on forms acceptable to the Department. Amendments to the system description shall be filed when a substantial modification is made to the system. Descriptions of new systems or modifications may be filed prior to construction if the water supplier desires technical assistance, but shall be filed within 30 days of initiation of operation of the system or modification.

(3) A noncommunity water system which satisfies the requirements of paragraphs (1) and (2) shall provide the Department with the following information describing new sources, including an evaluation of the quality of the raw water from each new source. Water quality analyses shall be conducted by a laboratory certified under this chapter. This paragraph does not apply when the new source is finished water obtained from an existing permitted community water system or an existing permitted or approved noncommunity water system unless the Department provides written notice that one or more of the provisions of this paragraph apply.

(i) For transient noncommunity water systems, the evaluation shall include analysis of the following:

(A) Nitrate (as nitrogen) and nitrite (as nitrogen).

(B) Total coliform concentration and, if total coliform-positive, analyze for fecal coliform concentration.

(C) Any other contaminant which the Department determines is necessary to evaluate the potability of the source or which the Department has reason to believe is present in the source water and presents a health risk to the users of the system.

(ii) For nontransient noncommunity water systems, the evaluation shall include the information required under § 109.503(a)(1)(iii)(B).

§ 109.506. Emergency permits.

(a) In emergency circumstances, the Department may issue permits for construction, operation or modifications to a public water system as the Department determines may be necessary to assure that potable drinking water is available to the public. Emergency permits shall be limited in duration and at the Department's discretion be conditioned on additional monitoring, reporting and implementation of appropriate emergency response measures. The Department may revoke an emergency permit if it finds the public water system is not complying with drinking water standards or the terms or conditions of the

permit. Authorization for construction, operation or modifications obtained under an emergency permit will not extend beyond the expiration of the permit.

(b) State and Federal agencies conducting emergency response bulk water hauling operations are not required to obtain a permit under this subchapter, if a Department approved source is utilized and adequate monitoring is conducted to assure compliance with the microbiological MCL specified in § 109.202 (relating to State MCLs, MRDLS and treatment technique requirements).

(c) Water suppliers having to comply with § 109.603(b) (relating to source quality and quantity) because of chronic water quantity problems shall apply for an amendment to their construction permit in accordance with § 109.503(b) (relating to public water system construction permits) to incorporate additional sources.

§ 109.507. Permits for innovative technology.

The Department may consider proposals for innovative water treatment processes, methods or equipment and may issue an innovative technology construction or operation permit if the applicant demonstrates to the Department's satisfaction that the proposal will provide drinking water that complies with Subchapter B (relating to MCLs, MRDLS or treatment technique requirements). Applications for innovative technology construction permits shall satisfy the requirements of § 109.503 (relating to public water system construction permits). The

Department may condition innovative technology operation permits on duration, additional monitoring, reporting or other requirements as it deems necessary to protect the public health. The Department may revoke an innovative technology construction or operation permit if it finds the public water system is not complying with drinking water standards or the terms or conditions of the permit or if there is a significant change in the source water quality which could affect the reliability and operability of the treatment facility. Authorization for construction, operation or modifications obtained under an innovative technology permit will not extend beyond the expiration date of the permit.

Subchapter F. DESIGN AND CONSTRUCTION STANDARDS

§ 109.602. Acceptable design.

(a) A public water system shall be designed to provide an adequate and reliable quantity and quality of water to the public. The design shall ensure that the system will, upon completion, be capable of providing water that complies with the primary and secondary MCLs, MRDLS and treatment techniques established in Subchapter B (relating to MCLs, MRDLS or treatment technique requirements) except as further provided in this section.

(1) The Department may approve control techniques such as nonremoval processes, which abate the problems associated with a secondary contaminant and achieve the objective of the secondary MCL.

(2) The Department may approve a design which may cause an exceedance of a secondary MCL if the exceedance directly results from a treatment method used to achieve compliance with a primary MCL, the level of the secondary contaminant in the

finished water does not represent an unreasonable risk to health nor otherwise adversely affect the normal uses of the finished water.

(b) Designs of public water facilities shall conform to accepted standards of engineering and design in the water supply industry and shall provide protection from failures of source, treatment, equipment, structures or power supply.

(c) The Department's Public Water Supply Manual sets forth design standards which the Department finds to be acceptable designs. Other designs may be approved by the Department if the applicant demonstrates the alternate design is capable of providing an adequate and reliable quantity and quality of water to the public.

(d) Filtration facilities permitted after May 16, 1992, unless otherwise authorized under § 109.507 (relating to permits for innovative technology), shall be designed to include individual sampling ports or turbidimeters on the raw source water line, on the influent line to the filters and on the effluent lines for each filter bed.

(e) Point-of-use devices which are treatment devices applied to a single tap are not an acceptable treatment method for complying with an MCL or treatment technique requirement.

§ 109.605. Minimum treatment design standards.

The level of treatment required for raw water depends upon the characteristics of the raw water, the nature of the public water system and the likelihood of contamination. The following

minimum treatment design standards apply to new facilities and major changes to existing facilities:

(1) For surface water sources, the minimum treatment design standard for filtration technologies is a 99% removal of Giardia cysts and a 99% removal of viruses. The determination of the appropriate filtration technology to be used shall be based on the following:

(i) Conventional filtration designed and operated in accordance with standards established in the Department's *Public Water Supply Manual* can be expected to achieve the minimum treatment design standard and shall be considered the best treatment for most surface water sources in this Commonwealth because of the multiple barriers of protection that it provides.

(ii) Direct filtration, slow sand filtration and diatomaceous earth filtration may be permitted if studies, including pilot studies where appropriate, approved by the Department are conducted and demonstrate, through achievement of the turbidity performance standards specified in § 109.202(c)(1)(i) (relating to State MCLs, MRDLS and treatment technique requirements), that the minimum treatment design standard can be achieved consistently, reliably and practically under appropriate design and operating conditions.

(iii) Other filtration technologies may be permitted after onsite studies, including pilot plant studies where appropriate, using seeded indicator organisms in the raw water or other equivalent means as approved by the Department, that demonstrate that the technology can consistently achieve the minimum treatment design standard.

(2) For surface water sources, the minimum treatment design standard for disinfection technologies utilized prior to the first user of the system is a total of 99.9% inactivation of Giardia cysts and a 99.99% inactivation of viruses. Total treatment system disinfection capability will be credited toward this design standard. The CT factors and measurement methods established by the EPA are the criteria to be used in determining compliance with this minimum treatment design standard.

§ 109.611. Disinfection.

Disinfection facilities shall be designed to provide the dosage rate and contact time prior to the first customer sufficient to provide a quality of water that complies with the microbiological MCL AND THE APPROPRIATE MRDL, specified in § 109.202 (relating to State MCLs, MRDLS and treatment technique requirements).

§ 109.612. POE devices.

(a) POE devices may be approved by the Department for use only by a public water supplier serving 100 or fewer individuals for the treatment of sources permitted prior to May 16, 1992.

(b) POE devices used by a public water supplier shall be tested and certified by the NSF or other certification organization acceptable to the Department against ANSI/NSF standards established for drinking water treatment devices. To be acceptable to the Department a certification organization other than NSF shall have a program at least as

stringent as the NSF program and meet the requirements under § 109.606(d) (relating to chemicals, materials and equipment) as applicable to ANSI/NSF standards for drinking water treatment devices.

(c) A public water supplier using POE devices as a means of treatment shall install a POE device on the service line to customers, except for customers who are provided with water that meets the requirements of Subchapter B (relating to MCLs, MRDLS or treatment technique requirements) without the use of a POE device.

(d) The design, installation and operation of a POE device shall be of a type that the microbiological safety of the water is maintained.

Subchapter G. SYSTEM MANAGEMENT RESPONSIBILITIES

§ 109.701. Reporting and recordkeeping.

(a) *Reporting requirements for public water systems.* Public water systems shall comply with the following requirements:

(1) *General reporting requirements.* Unless a shorter period is specified in this section, the water supplier shall assure that the results of test measurements or analyses required by this chapter are reported to the Department within either the first 10 days following the month in which the result is received or the first 10 days following the end of the

required monitoring period as stipulated by the Department, whichever is shorter. The test results shall include the following at a minimum:

(i) The name, address and public water system identification number (PWSID) of the public water system from which the sample was taken.

(ii) The name, address and identification number of the laboratory performing the analysis unless the analysis is not required to be performed by a certified laboratory.

(iii) The results of analytical methods, including negative results.

(iv) Contaminants.

(v) Analytical methods used.

(vi) The date of sample.

(vii) The date of analysis.

(viii) Sample location.

(2) *Monthly reporting requirements for performance monitoring.*

(i) The test results of performance monitoring required under § 109.301(1) (relating to general monitoring requirements) for public water suppliers providing filtration and disinfection of surface water sources shall include the following at a minimum:

(A) For turbidity performance monitoring:

(I) The number of days of filtration operation.

(II) The number of measurements taken each month.

(III) The number of measurements that equal or exceed .5 NTU for conventional, direct or other filtration technologies, or 1.0 NTU for slow sand or diatomaceous earth filtration technologies.

(IV) The date, time and values of measurements exceeding 2.0 NTU.

(B) For performance monitoring of the residual disinfectant concentration of the water being supplied to the distribution system:

(I) The date, time and lowest value each day.

(II) The date, duration and number of periods each day when the concentration is less than .2 mg/l for more than 4 hours.

(C) For performance monitoring of the residual disinfectant concentration at representative points in the distribution system report the following:

(I) The number of monthly routine samples required.

(II) The number of monthly routine samples collected and analyzed.

(III) The number of samples in which the residual disinfectant concentration was less than 0.02 mg/l.

(IV) For samples in which the residual disinfectant concentration was less than 0.02 mg/l: the date, time and value of each sample.

(ii) The test results of performance monitoring required under § 109.301(2) for public water suppliers using unfiltered surface water sources shall include the following, at a minimum:

(A) For turbidity performance monitoring:

(I) The date, time and value of each sample that exceeds 1.0 NTU.

(II) The date, time and highest turbidity value, if the turbidity does not exceed 1.0 NTU in a sample.

(B) For performance monitoring of the residual disinfectant concentration of the water being supplied to the distribution system:

(I) The date, time and lowest value each day the concentration is less than the residual disinfectant concentration required under § 109.202(c)(1)(iii) (relating to State MCLs, MRDLS and treatment technique requirements).

(II) If the concentration does not fall below that required under § 109.202(c)(1)(iii) during the month, report the date, time and lowest value measured that month.

(C) For performance monitoring of the residual disinfectant concentration at representative points in the distribution system, report the following:

(I) The number of monthly routine samples required.

(II) The number of monthly routine samples collected and analyzed.

(III) The number of samples in which the residual disinfectant concentration was less than 0.02 mg/l.

(IV) For samples in which the residual disinfectant concentration was less than 0.02 mg/l: the date, time and value of each sample.

(D) For performance monitoring of the fecal coliform or total coliform density determinations on samples of the source water immediately prior to disinfection: the date, time and value of each sample.

(iii) The test results from performance monitoring required under § 109.301(7)(v) of the residual disinfectant concentration of the water in the distribution system shall include the date, time and value of each sample.

(iv) The test results of heterotrophic plate count measurements taken under § 109.710(b) (relating to disinfectant residual in the distribution system) shall include the date, time and value of each sample.

(3) *Compliance report.* The water supplier shall report to the Department within 48 hours failure to comply with Subchapter C (relating to monitoring requirements), except

that emergency notification shall be made under § 109.402 (relating to emergency public notification).

(4) *Notice.* The water supplier shall, within 10 days of completion of each public notification required under Subchapter D (relating to public notification), submit to the Department a representative copy of each type of notice and a description of the publication, distribution, posting or other means undertaken to make the notice available.

(5) *Siting plan.* The water supplier shall submit to the Department a written sample siting plan for routine coliform sampling as required by § 109.303(a)(2) within 30 days of receipt of the Department's request for this information.

(i) A sample siting plan shall include at a minimum the following:

(A) A list of available sample site locations in the distribution system to be used for routine monitoring purposes, including the first service connection (or Department approved equivalent) and dead ends.

(B) The name of the company or individual collecting the samples.

(C) A time period by which available sites representative of the distribution system are to be sampled during each monitoring period.

(ii) The Department's approval of a sample siting plan will be based upon the following:

(A) The population served by the system.

(B) The accessibility of sample sites.

(C) The past monitoring history for the system.

(D) The completeness of the sample siting plan which includes the information specified in subparagraph (i) and other information relating to the criteria in this subparagraph necessary for evaluation of the sample siting plan.

(iii) A water supplier shall revise and resubmit its sample siting plan within 30 days of notification by the Department of a sample siting plan which fails to meet the criteria in subparagraphs (i) and (ii).

(iv) The water supplier shall notify the Department of subsequent revisions to an approved coliform sample siting plan for approval as they occur. Revisions to an approved coliform sample siting plan shall be submitted in written form to the Department within 30 days of notifying the Department of the revisions.

(6) *Records.* Upon request by the Department, the water supplier shall submit copies of records required to be maintained under this subchapter.

(7) *Form.* Reports required by this chapter shall be submitted in a manner or form acceptable to the Department.

(8) *REPORTING REQUIREMENTS FOR DISINFECTANT RESIDUALS.* PUBLIC WATER SYSTEMS SHALL REPORT MRDL MONITORING DATA AS FOLLOWS:

(i) FOR SYSTEMS MONITORING FOR CHLORINE DIOXIDE UNDER § 109.301(13)[,]:

(A) THE DATES, RESULTS AND LOCATIONS OF THE SAMPLES THAT WERE TAKEN DURING THE PREVIOUS MONTH.

(B) WHETHER THE MRDL WAS EXCEEDED.

(C) WHETHER THE MRDL WAS EXCEEDED IN ANY 2 CONSECUTIVE DAILY SAMPLES AND WHETHER THE RESULTING VIOLATION WAS ACUTE OR NONACUTE.

(ii) FOR SYSTEMS MONITORING FOR EITHER CHLORINE OR CHLORAMINES UNDER § 109.301(13):

(A) THE NUMBER OF SAMPLES TAKEN DURING EACH MONTH OF THE PREVIOUS QUARTER.

([A]B) THE MONTHLY ARITHMETIC AVERAGE OF ALL SAMPLES TAKEN IN EACH MONTH FOR THE LAST 12 MONTHS.

([B]C) THE ARITHMETIC AVERAGE OF ALL MONTHLY AVERAGES FOR THE LAST 12 MONTHS.

(D) WHETHER THE MRDL WAS EXCEEDED.

(9) *REPORTING REQUIREMENTS FOR DISINFECTION BYPRODUCTS.*

(i) SYSTEMS MONITORING FOR TTHMS AND HAA5 UNDER § 109.301(12) SHALL REPORT THE FOLLOWING:

(A) SYSTEMS MONITORING ON A QUARTERLY OR MORE FREQUENT BASIS SHALL REPORT THE FOLLOWING:

(I) THE NUMBER OF SAMPLES TAKEN DURING THE LAST QUARTER.

(II) THE DATE, LOCATION AND RESULT OF EACH SAMPLE TAKEN DURING THE LAST QUARTER.

(III) THE ARITHMETIC AVERAGE OF ALL SAMPLES TAKEN IN THE LAST QUARTER.

(IV) THE ANNUAL ARITHMETIC AVERAGE OF THE QUARTERLY ARITHMETIC AVERAGES FOR THE LAST 4 QUARTERS.

(V) WHETHER THE ANNUAL ARITHMETIC AVEARGE EXCEEDS THE MCL FOR EITHER TTHMS OR HAA5.

(B) SYSTEMS MONITORING LESS THAN QUARTERLY BUT NO LESS THAN ANNUALLY SHALL REPORT THE FOLLOWING:

(I) THE NUMBER OF SAMPLES TAKEN DURING THE LAST YEAR.

(II) THE DATE, LOCATION AND RESULT OF EACH SAMPLE TAKEN DURING THE LAST MONITORING PERIOD.

(III) THE ARITHMETIC AVERAGE OF ALL SAMPLES TAKEN IN THE LAST YEAR.

(IV) WHETHER THE ANNUAL ARITHMETIC AVERAGE EXCEEDS THE MCL FOR EITHER TTHMS OR HAA5.

(C) SYSTEMS MONITORING LESS THAN ANNUALLY SHALL REPORT THE FOLLOWING:

(I) THE DATE, LOCATION AND RESULT OF THE LAST SAMPLE TAKEN.

(II) WHETHER THE SAMPLE EXCEEDS THE MCL FOR EITHER TTHMS OR HAA5.

(ii) SYSTEMS MONITORING FOR CHLORITE UNDER § 109.301(12) SHALL REPORT THE FOLLOWING:

(A) THE NUMBER OF [ENTRY POINT] SAMPLES TAKEN EACH MONTH FOR THE LAST 3 MONTHS.

(B) THE DATE, LOCATION AND RESULT OF EACH ENTRY POINT AND DISTRIBUTION SAMPLE TAKEN DURING THE LAST QUARTER.

(C) THE ARITHMETIC AVERAGE OF EACH THREE-SAMPLE SET OF DISTRIBUTION SAMPLES TAKEN IN EACH MONTH IN THE REPORTING PERIOD.

(D) WHETHER THE MONTHLY ARITHMETIC AVERAGE EXCEEDS THE MCL.

(iii) SYSTEMS MONITORING FOR BROMATE UNDER § 109.301(12) SHALL REPORT THE FOLLOWING:

(A) THE NUMBER OF SAMPLES TAKEN DURING THE LAST QUARTER.

(B) THE DATE, LOCATION AND RESULT OF EACH SAMPLE TAKEN DURING THE LAST QUARTER.

(C) THE ARITHMETIC AVERAGE OF THE MONTHLY ARITHMETIC AVERAGES OF ALL SAMPLES TAKEN IN THE LAST YEAR.

(D) WHETHER THE ANNUAL ARITHMETIC AVERAGE EXCEEDS THE MCL.

(10) *REPORTING REQUIREMENTS FOR DISINFECTION BYPRODUCT PRECURSORS.* SYSTEMS MONITORING FOR TOC UNDER § 109.301(12) SHALL REPORT IN ACCORDANCE WITH 40 CFR 141.134(d) (RELATING TO REPORTING AND RECORDKEEPING REQUIREMENTS FOR DISINFECTION BYPRODUCT PRECURSORS AND ENHANCED COAGULATION OR ENHANCED SOFTENING).

(b) *Reporting requirements for community water systems.* In addition to the reporting requirements for a public water system, a community water supplier shall comply with the following requirements:

(1) The water supplier shall prepare a monthly operational report on forms provided by the Department or in a form acceptable to the Department. The report shall be maintained on file by the operator for at least 2 years and submitted upon request of the Department. The report shall include at least the following:

(i) The water produced daily.

(ii) The chemical added daily.

(iii) The physical and chemical determinations taken daily.

(iv) Water-level monitoring data for supply and any associated monitoring wells.

(v) The maintenance performed.

(vi) Operational problems.

(2) The water supplier shall submit by March 31 an annual water supply report for the prior calendar year on forms provided by the Department or in a form acceptable to the Department. This report shall include information relating to water use, connections, distribution system and storage.

(3) The water supplier shall keep a record of complaints received from consumers related to this act or this chapter on forms provided by the Department or in a form acceptable to the Department. Water suppliers complying with the Pennsylvania Public Utility Commission (PUC) complaint recordkeep ing requirements under 52 Pa. Code § 65.3 (relating to complaints) shall be in compliance with this subsection if the complaints related to the act or this chapter are cross referenced within the PUC required records in a manner to make them readily available. The records shall be maintained on file by the operator for at least 3 years and submitted upon request of the Department.

(c) *Reporting requirements for nontransient noncommunity water systems.* In addition to complying with the reporting requirements for public water systems under subsection (a),

a nontransient noncommunity water system shall comply with subsection (b)(1) except that records of water produced daily are not required.

(d) *Record maintenance.* The public water supplier shall retain on the premises of the public water system or at a convenient location near the premises the following:

(1) Records of bacteriological analyses which shall be kept for at least 5 years, and records of chemical analyses which shall be kept for at least 12 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, if the following information is included:

(i) The date, place and time of sampling, and the name of the person who collected the sample.

(ii) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or finished water sample or other special purpose sample.

(iii) The date of analysis.

(iv) The laboratory, certification number and person responsible for performing the analysis.

(v) The analytical technique and methods used.

(vi) The results of the analysis.

(2) Records of performance monitoring required under § 109.301 which shall be kept for at least 3 years. At a minimum, these records shall contain the reporting requirements under subsection (a).

(3) Records of action taken by the public water supplier to correct violations of MCLs, MRDLS or treatment technique requirements, which shall be kept for at least 3 years after the last action taken with respect to the particular violation involved.

(4) Copies of written reports or communications relating to sanitary surveys conducted by a water supplier or his agent, which shall be kept for at least 12 years.

(5) Records concerning a variance or exemption granted to the system which shall be kept at least 5 years following the expiration of the variance or exemption.

(6) Plans, specifications and permits for water system facilities which shall be kept for the life of the facility.

(7) Records concerning the use of acrylamide and epichlorohydrin shall be kept for at least 12 years. These records shall include verification that the chemicals used were certified for conformance with ANSI/NSF Standard 60 in accordance with § 109.606 (relating to chemicals, materials and equipment) and that the combination—or product—of dose and monomer level did not exceed the following:

(i) Acrylamide = 0.05% dosed at 1 ppm (or equivalent).

(ii) Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent).

(e) *MONITORING PLANS FOR DISINFECTANTS, DISINFECTION BYPRODUCTS AND DISINFECTION BYPRODUCT PRECURSORS.* SYSTEMS REQUIRED TO MONITOR FOR DISINFECTION BYPRODUCTS OR DISINFECTION BYPRODUCT PRECURSORS UNDER § 109.301(12) OR DISINFECTANT RESIDUALS UNDER § 109.301(13) SHALL DEVELOP AND IMPLEMENT A MONITORING PLAN. THE SYSTEM SHALL MAINTAIN THE PLAN AND MAKE IT AVAILABLE FOR INSPECTION BY THE DEPARTMENT AND THE GENERAL PUBLIC NO LATER THAN 30 DAYS FOLLOWING THE APPLICABLE COMPLIANCE DATES. ALL SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES SHALL SUBMIT A COPY OF THE MONITORING PLAN TO THE DEPARTMENT NO LATER THAN **30 DAYS PRIOR TO** THE DATE OF THE FIRST REPORT REQUIRED UNDER THIS SUBCHAPTER. THE DEPARTMENT MAY ALSO REQUIRE THE PLAN TO BE SUBMITTED BY ANY OTHER SYSTEM, REGARDLESS OF SIZE OR SOURCE WATER TYPE. AFTER REVIEW, THE DEPARTMENT MAY REQUIRE CHANGES IN ANY OF THE PLAN COMPONENTS.

(1) THE PLAN SHALL INCLUDE THE FOLLOWING COMPONENTS:

(i) SPECIFIC LOCATIONS AND SCHEDULES FOR COLLECTING SAMPLES FOR ANY PARAMETERS INCLUDED IN § 109.301 (12) OR (13).

(ii) HOW THE SYSTEM WILL CALCULATE COMPLIANCE WITH THE MCLS, MRDLS AND TREATMENT TECHNIQUES.

(iii) IF APPROVED FOR MONITORING AS A CONSECUTIVE SYSTEM, OR IF PROVIDING WATER TO A CONSECUTIVE SYSTEM, THE SAMPLING PLAN SHALL REFLECT THE ENTIRE DISTRIBUTION SYSTEM.

(iv) SYSTEMS MAY CONSIDER MULTIPLE WELLS DRAWING WATER FROM A SINGLE AQUIFER AS ONE TREATMENT PLANT FOR DETERMINING THE MINIMUM NUMBER OF TTHM AND HAA5 SAMPLES REQUIRED UNDER § 109.301(12)(i).

(2) THE SYSTEM SHALL NOTIFY THE DEPARTMENT OF SUBSEQUENT REVISIONS TO A[N **APPROVED**] MONITORING PLAN [**FOR APPROVAL**] AS THEY OCCUR. REVISIONS TO A[N **APPROVED**] MONITORING PLAN SHALL BE SUBMITTED IN WRITTEN FORM TO THE DEPARTMENT WITHIN 30 DAYS OF NOTIFYING THE DEPARTMENT OF THE REVISIONS.

§ 109.704. Operator certification.

(a) Community water systems shall have personnel certified under the Sewage Treatment Plant and Waterworks Operators' Certification Act (63 P. S. § § 1001—1015) and qualified by experience and education to operate and maintain a public water system.

(b) Noncommunity water systems shall have competent personnel qualified to operate and maintain the system's facilities.

(c) BEGINNING _____ (*EDITOR'S NOTE*: THE BLANK REFERS TO A DATE 3 YEARS FROM THE EFFECTIVE DATE OF THE ADOPTION OF THIS PROPOSAL).

NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT PROVIDE WATER THAT CONTAINS A CHEMICAL DISINFECTANT SHALL BE OPERATED BY QUALIFIED PERSONNEL CERTIFIED UNDER THE SEWAGE TREATMENT PLANT AND WATERWORKS OPERATORS' CERTIFICATION ACT (63 P. S. §§ 1001--1015). THE MINIMUM CERTIFICATION TO OPERATE THESE FACILITIES SHALL BE A CERTIFICATE TO OPERATE PLANTS WITH DISINFECTION ONLY, UNDER § 303.2 (RELATING TO WATERWORKS OPERATORS CERTIFICATES).

§ 109.710. Disinfectant residual in the distribution system.

(a) A disinfectant residual acceptable to the Department shall be maintained throughout the distribution system of the community water system sufficient to assure compliance with the microbiological MCLs and the treatment technique requirements specified in § 109.202 (relating to State MCLs, MRDLS and treatment technique requirements). The Department will determine the acceptable residual of the disinfectant considering factors such as type and form of disinfectant, temperature and pH of the water, and other characteristics of the water system.

(b) A public water system that uses surface water sources or obtains finished water from another permitted public water system using surface water sources shall comply with the following requirements:

(1) As a minimum, a detectable residual disinfectant concentration of 0.02 mg/l measured as total chlorine, combined chlorine or chlorine dioxide shall be maintained throughout the distribution system as demonstrated by monitoring conducted under § 109.301(1) and (2) or (7)(v) (relating to general monitoring requirements).

(2) Sampling points with nondetectable disinfectant residuals which have heterotrophic plate count (HPC) measurements of less than 500/ml are deemed to be in compliance with paragraph (1).

(3) When the requirements of paragraph (1) or (2) cannot be achieved, the supplier shall initiate an investigation under the Department's direction to determine the cause, potential health risks and appropriate remedial measures.

(c) PUBLIC WATER SYSTEMS MAY INCREASE RESIDUAL CHLORINE OR CHLORAMINE, BUT NOT CHLORINE DIOXIDE, DISINFECTANT LEVELS IN THE DISTRIBUTION SYSTEM TO A LEVEL THAT EXCEEDS THE MRDL FOR THAT DISINFECTANT AND FOR A TIME NECESSARY TO PROTECT PUBLIC HEALTH OR TO ADDRESS SPECIFIC MICROBIOLOGICAL CONTAMINATION PROBLEMS CAUSED BY CIRCUMSTANCES SUCH AS, BUT NOT LIMITED TO, DISTRIBUTION LINE BREAKS, STORM RUNOFF EVENTS, SOURCE WATER CONTAMINATION EVENTS OR CROSS-CONNECTION EVENTS.

Subchapter H. LABORATORY CERTIFICATION

§ 109.801. Certification requirement.

A laboratory shall be certified under this subchapter to perform analyses acceptable to the Department for the purposes of ascertaining drinking water quality and demonstrating

compliance with monitoring requirements established in Subchapter C (relating to monitoring requirements).

(1) The drinking water quality parameters for which general monitoring is prescribed under Subchapter C are divided into the certification categories of microbiological contaminants, inorganic chemicals, organic chemicals and radionuclides. The categories are further divided into subcategories.

(2) A laboratory may apply for and obtain certification in one or more of the certification categories or subcategories. The laboratory shall demonstrate competence to analyze all parameters in the category or subcategory for which certification is sought.

(3) A parameter of drinking water quality for which no MCL, MRDL or monitoring requirement of general applicability has been established may be part of a certification subcategory.

§ 109.805. Certification procedure.

(a) After the Department receives a completed application accompanied by the applicable fee under § 109.803 (relating to fees), the Department may schedule an onsite inspection of the laboratory.

(b) [For certification areas other than microbiology, the laboratory shall successfully complete at least one set of performance evaluation samples required by the Department for the parameters in the category for which certification is sought. Acceptable tolerances of analyses of performance evaluation samples shall be as stated by the EPA in 40 CFR 141.23(k)(5), 141.24(f)(17) and (h)(19) (relating to inorganic chemical sampling and analytical requirements; and organic chemicals other than total trihalomethanes, sampling and analytical requirements). For microbiology certification, the laboratory shall successfully complete a set of performance evaluation samples as required by the Department to show proficiency.] THE LABORATORY SHALL SUCCESSFULLY COMPLETE AT LEAST ONE SET OF PROFICIENCY TEST SAMPLES REQUIRED BY THE DEPARTMENT FOR THE PARAMETERS IN THE CATEGORY FOR WHICH CERTIFICATION IS SOUGHT. ACCEPTABLE TOLERANCES OF ANALYSES OF PROFICIENCY TEST EVALUATION SAMPLES SHALL BE AS STATED BY THE EPA IN 40 CFR PART 141 (RELATING TO NATIONAL PRIMARY DRINKING WATER REGULATIONS) OR THE "NATIONAL STANDARDS FOR WATER PROFICIENCY TESTING, CRITERIA DOCUMENT." FOR PARAMETERS NOT INCLUDED IN EITHER DOCUMENT THE ACCEPTANCE LIMITS SHALL BE THOSE ESTABLISHED BY THE DEPARTMENT.

(c) The Department may grant administrative approval to a currently certified laboratory which has submitted a complete application for renewal of an existing certification, and the appropriate fee, and has successfully completed a performance sample for a previously uncertified subcategory before final certification is issued for that new subcategory. Analyses performed by a laboratory with administrative approval satisfy the

requirements of this chapter. The Department may revoke an administrative approval at any time for just cause.

(d) The laboratory shall conspicuously display an administrative approval or certification issued to the laboratory by the Department under this subchapter.

(e) In addition to terms and conditions in the certification issued to a laboratory, the certified laboratory shall fulfill the following requirements to maintain certification:

(1) The laboratory shall notify the Department within 30 days of major changes in personnel, personnel assignments, equipment, and facilities which affect accredited procedures. The Department may require additional information or proof of continued capability to perform the certified category of analyses. For the purposes of this subsection, personnel include laboratory supervisors and trained, experienced analysts.

(2) The laboratory shall have a satisfactory on-site inspection at least once every 3 years.

(3) THE LABORATORY SHALL SUCCESSFULLY COMPLETE AT LEAST ONE SET OF PROFICIENCY TEST SAMPLES REQUIRED BY THE DEPARTMENT AT LEAST ONCE EVERY 12 MONTHS.

§ 109.810. Reporting and notification requirements.

(a) A laboratory certified under this subchapter shall submit to the Department, on forms provided by the Department, the results of test measurements or analyses performed by the laboratory under this chapter. These results shall be reported within either the first 10 days following the month in which the result is determined or the first 10 days following the end of the required monitoring period as stipulated by the Department, whichever is shorter.

(b) A laboratory certified under this subchapter shall whenever an MCL, MRDL or a treatment technique performance requirement under § 109.202 (relating to State MCLs, MRDLS and treatment technique requirements) is violated, or a sample result requires the collection of check samples under § 109.301 (relating to general monitoring requirements):

(1) Notify the public water supplier by telephone within 1 hour of the laboratory's determination. If the supplier cannot be reached within that time, notify the Department by telephone within 2 hours of the determination. If the Department cannot be reached due to an occurrence during weekend, holiday or evening hours, notify the Department by phone within 2 hours of the beginning of the next business day.

(2) Notify the Department in writing within 24 hours of the determination. For the purpose of determining compliance with this requirement, the postmark, if the notice is mailed, or the date the notice is received by the Department, whichever is earlier, will be used.

(c) A laboratory certified under this subchapter shall notify the Department within 48 hours of termination of the laboratory certification from the EPA or another agency with primary enforcement responsibility.

(d) A laboratory shall notify the public water supplier served by the laboratory within 48 hours of the following:

(1) A failure to renew existing certification for a category of certification.

(2) Revocation of certification by the Department under this subchapter.

Subchapter I. VARIANCES AND EXEMPTIONS ISSUED BY THE DEPARTMENT

§ 109.901. Requirements for a variance.

(a) The Department may grant one or more variances to a public water system from a requirement respecting a MCL upon finding that:

(1) The public water system has installed and is using the best treatment technology, treatment methods or other means that the Department in concurrence with the Administrator finds are generally available to reduce the level of the contaminant.

(2) The water supplier has demonstrated to the Department that, because of characteristics of the raw water sources which are reasonably available to the system, the system cannot meet the requirements respecting the MCLs.

(3) The granting of a variance will not result in an unreasonable risk to the health of persons served by the system.

(b) The Department may grant one or more variances to a public water system from a treatment technique requirement upon a finding that the public water supplier applying for the variance has demonstrated that, because of the nature of the raw water source of the system the treatment technique is not necessary to protect the health of the persons served by the system. The treatment technique requirements established under § 109.202(c) (relating to State MCLs, MRDLS and treatment techniques requirements) and treatment technique requirements established under § 109.1102(b) (relating to action levels and treatment technique requirements) are not eligible for a variance.

§ 109.903. Requirements for an exemption.

(a) The Department may exempt a public water system from an MCL or treatment technique requirement upon finding that:

(1) Due to compelling factors, the public water system is unable to comply with the contaminant level or treatment technique requirement.

(2) The public water system was in operation on the effective date of the contaminant level or treatment technique requirement or, for a system that was not in operation by that date, only if no reasonable alternative source of drinking water is available to the new system.

(3) The granting of the exemption will not result in an unreasonable risk to health.

(b) The treatment technique requirements established under § 109.202(c) (relating to State MCLs, MRDLS and treatment technique requirements) and treatment technique requirements established under § 109.1102(b) (relating to action levels and treatment technique requirements) are not eligible for an exemption.

Subchapter J. BOTTLED WATER AND VENDED WATER SYSTEMS, RETAIL WATER FACILITIES AND BULK WATER HAULING SYSTEMS

§ 109.1002. MCLs, MRDLS or treatment techniques.

(a) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall supply drinking water that complies with the MCLs, MRDLS and treatment technique requirements under §§ 109.202 and 109.203 (relating to State MCLs, MRDLS and treatment technique requirements; and unregulated contaminants). Bottled water systems, vended water systems, retail water facilities and bulk water hauling systems shall provide continuous disinfection for groundwater sources. Water for bottling labeled as mineral water, under § 109.1007 (relating to labeling requirements for bottled water systems, vended water

systems and retail water facilities) shall comply with the MCLs except that mineral water may exceed the MCL for total dissolved solids.

(b) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall supply drinking water that contains no more than 0.005 mg/L of lead and no more than 1.0 mg/L copper.

§ 109.1003. Monitoring requirements.

(a) *General monitoring requirements*. Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall monitor for compliance with the MCLs AND MRDLS in accordance with § 109.301 (relating to general monitoring requirements) and shall comply with § 109.302 (relating to special monitoring requirements). The monitoring requirements shall be applied as follows, except that systems which have installed treatment to comply with a primary MCL shall conduct quarterly operational monitoring for the contaminant which the facility is designed to remove:

(1) Bottled water systems, retail water facilities and bulk water hauling systems, for each entry point shall:

(i) Monitor for microbiological contaminants weekly.

(ii) Monitor for turbidity every 4 hours or continuously each day a surface water source is in use.

(iii) Monitor for compliance with the MCLs for VOCs in accordance with § 109.301(5) beginning during the quarter that begins January 1, 1995, except that:

(A) Systems that obtain finished water from another permitted public water system are exempt from conducting monitoring for the VOCs if the public water system supplying the finished water performs the required monitoring at least annually and a copy of the analytical reports are received by the Department.

(B) For systems in existence prior to January 1, 1995, that obtain raw water from only protected groundwater sources, initial monitoring for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) (relating to MCLs for organic contaminants) on January 30, 1991, and July 17, 1992, will be reduced to one sample for entry points or systems which meet the following conditions:

(I) The VOC monitoring required by the Department between January 1, 1988, and December 31, 1994, has been conducted and no VOCs were detected.

(II) The first quarter of VOC monitoring required by this subparagraph has been conducted during the first quarter of 1995 with no detection of a VOC.

(C) Initial monitoring of new entry points associated with new sources which are permitted in accordance with § 109.1005 (relating to permit requirements) to begin operation after December 31, 1994, shall be conducted as follows:

(I) Entry points at which a VOC is detected during new source monitoring shall be monitored quarterly beginning the first quarter the entry points begin serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with clause (D)(I).

(II) Entry points at which no VOC is detected during new source monitoring shall begin initial quarterly monitoring during the first calendar quarter of the year after the entry point begins serving the public.

(D) Repeat monitoring for entry points shall be conducted as follows:

(I) For an entry point at which a VOC is detected during initial monitoring or where a VOC is detected anytime at a level in excess of its MCL, compliance monitoring shall be repeated quarterly for the VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in § 109.301(5)(i). After analyses of four consecutive quarterly samples at an entry point, including initial quarterly monitoring samples, demonstrate that the VOC levels in each quarterly sample are less than the MCLs, the required compliance monitoring is reduced to one sample per year at that entry point for all 21 VOCs, except for vinyl chloride as provided in § 109.301(5)(i).

(II) For a groundwater or surface water entry point at which VOCs are not detected during the initial and subsequent repeat monitoring, repeat monitoring shall be one sample per year from that entry point.

(iv) Conduct initial and repeat monitoring for compliance with the MCLs for SOCs—pesticides and PCBs—in accordance with § 109.301(6) for four consecutive quarters beginning during the quarter that begins January 1, 1995, except that:

(A) Systems that obtain finished water from another permitted public water system are exempt from conducting compliance monitoring for the SOCs if one of the following applies:

(I) The public water system supplying the finished water performs the required monitoring annually and a copy of the analytical results are received by the Department.

(II) The public water system supplying the water has been granted a waiver from conducting the initial or repeat compliance monitoring, or both, for one or more SOCs under § 109.301(6)(v). This exemption from conducting compliance monitoring applies only to SOCs indicated in the waiver.

(B) Systems which are granted an initial monitoring waiver in accordance with § 109.301(6)(v) are exempt from conducting compliance monitoring for the SOCs indicated in the waiver.

(C) Initial monitoring of new entry points associated with new sources which are permitted in accordance with § 109.1005 to begin operation after December 31, 1994, shall be conducted as follows:

(I) Entry points at which an SOC is detected during new source monitoring shall be monitored quarterly beginning the first quarter the entry points begin serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with clause (D)(I).

(II) Entry points at which no SOC is detected during new source monitoring and which begin operation before April 1, 1995, shall conduct initial quarterly monitoring beginning during the quarter beginning January 1, 1995.

(III) Entry points at which no SOC is detected during new source monitoring and which begin operation after March 31, 1995, shall conduct initial quarterly monitoring beginning during the first calendar quarter of the year after the entry point begins serving the public.

(D) Repeat monitoring for entry points shall be conducted as follows:

(I) For entry points at which an SOC is detected during initial monitoring or where an SOC is detected anytime in excess of its MCL, compliance monitoring shall be repeated quarterly for the detected SOC for which the EPA has an established MCL under 40 CFR 141.61(c). After analyses of four consecutive quarterly samples at an entry point, including initial quarterly monitoring samples, demonstrate that the SOC level in each quarterly sample is less than the MCL, the required compliance monitoring is reduced for each SOC below the MCL to one sample per year at that entry point.

(II) For a groundwater or surface water entry point at which SOCs are not detected during the initial and any subsequent repeat monitoring, repeat monitoring shall be one sample per year from that entry point.

(v) Beginning in 1995, monitor for the primary IOCs, including lead and copper annually, except that:

(A) Systems are granted a waiver from asbestos monitoring unless the Department determines that the system's finished water is vulnerable to asbestos contamination by means of an asbestos cement pipe or the system's source water is vulnerable to asbestos contamination.

(B) Systems that obtain finished water from another permitted public water system are exempt from conducting compliance monitoring for the IOCs, except lead, copper and asbestos if the supplying system has not optimized corrosion control, if the public water system supplying the finished water performs the required monitoring annually and a copy of the analytical results is received by the Department.

(C) Monitoring for compliance with the MCLs for nitrate and nitrite shall be conducted quarterly following a monitoring result which is equal to or greater than 50% of the MCL. After four consecutive quarterly samples, indicate nitrate and nitrite in each sample are less than 50% of the MCLs, required monitoring is reduced to one sample per year.

(vi) Conduct operational monitoring for fluoride at least once each day, if the system fluoridates its water.

(vii) Monitor for compliance with radiological MCLs once every 4 years.

(viii) [MONITOR MONTHLY FOR BROMATE, IF THE SYSTEM USES OZONE FOR DISINFECTION OR OXIDATION.

(A) SYSTEMS SHALL TAKE ONE SAMPLE PER MONTH FOR EACH ENTRY POINT THAT USES OZONE WHILE THE OZONATION SYSTEM IS OPERATING UNDER NORMAL CONDITIONS.

(B) SYSTEMS MAY REDUCE MONITORING FOR BROMATE FROM MONTHLY TO QUARTERLY IF THE SYSTEM DEMONSTRATES THAT THE AVERAGE SOURCE WATER BROMIDE CONCENTRATION IS LESS THAN 0.05 MG/L BASED UPON REPRESENTATIVE MONTHLY BROMIDE MEASUREMENTS FOR 1 YEAR. SYSTEMS ON REDUCED MONITORING SHALL CONTINUE MONTHLY SOURCE WATER BROMIDE MONITORING. IF THE RUNNING ANNUAL AVERAGE SOURCE WATER BROMIDE CONCENTRATION, COMPUTED QUARTERLY, IS EQUAL TO OR EXCEEDS 0.05 MG/L, THE SYSTEM SHALL REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A).]

BEGINNING JANUARY 1, 2004, MONITOR ANNUALLY FOR TTHMS AND HAA5 IF THE SYSTEM USES A CHEMICAL DISINFECTANT OR OXIDANT, OR USES A SOURCE THAT HAS BEEN TREATED WITH A CHEMICAL DISINFECTANT OR OXIDANT. BOTTLED WATER SYSTEMS ARE NOT REQUIRED TO MONITOR FOR TTHMS AND HAA5 IF THE SYSTEM DOES NOT USE A CHLORINE-BASED DISINFECTANT OR OXIDANT AND DOES NOT USE A SOURCE THAT HAS BEEN TREATED WITH A CHLORINE-BASED DISINFECTANT OR OXIDANT.

(A) *ROUTINE MONITORING.* SYSTEMS SHALL TAKE AT LEAST ONE SAMPLE PER YEAR PER ENTRY POINT DURING THE MONTH OF WARMEST WATER

TEMPERATURE. IF THE SAMPLE, OR AVERAGE OF ALL SAMPLES, EXCEEDS EITHER A TTHM OR HAA5 MCL, THE SYSTEM SHALL TAKE AT LEAST ONE SAMPLE PER QUARTER PER ENTRY POINT. THE SYSTEM MAY REDUCE THE SAMPLING FREQUENCY BACK TO ONE SAMPLE PER YEAR PER ENTRY POINT IN ACCORDANCE WITH THE REDUCED MONITORING CRITERIA OF CLAUSE (B).

(B) *REDUCED MONITORING.* SYSTEMS THAT HAVE MONITORED FOR TTHMS AND HAA5 FOR AT LEAST 1 YEAR MAY REDUCE MONITORING ACCORDING TO THIS CLAUSE. SYSTEMS THAT USE EITHER A SURFACE WATER OR GUDI SOURCE SHALL MONITOR SOURCE WATER TOC MONTHLY FOR AT LEAST ONE YEAR PRIOR TO QUALIFYING FOR REDUCED MONITORING. THE DEPARTMENT RETAINS THE RIGHT TO REQUIRE A SYSTEM THAT MEETS THE REQUIREMENTS OF THIS CLAUSE TO RESUME ROUTINE MONITORING.

(I) SYSTEMS THAT ARE ON INCREASED MONITORING AS PRESCRIBED BY CLAUSE (A) AND THAT USE EITHER A SURFACE WATER OR GUDI SOURCE AND THAT HAVE A SOURCE WATER ANNUAL TOC THAT IS NO GREATER THAN 4.0 MG/L AND AN ANNUAL TTHM AVERAGE THAT IS NO GREATER THAN 0.040 MG/L AND AN ANNUAL HAA5 AVERAGE THAT IS NO GREATER THAN 0.030 MG/L MAY REDUCE MONITORING TO ONE SAMPLE PER YEAR PER ENTRY POINT. THE SAMPLE SHALL BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE. SYSTEMS THAT QUALIFY FOR REDUCED

MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.060 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.045 MG/L. SYSTEMS THAT EXCEED THESE LEVELS SHALL RESUME ROUTINE MONITORING AS PRESCRIBED IN CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING THE QUARTER IN WHICH THE SYSTEM EXCEEDS 0.060 MG/L FOR TTHMS OR 0.045 MG/L FOR HAA5.

(II) SYSTEMS THAT USE GROUNDWATER SOURCES MAY REDUCE MONITORING TO ONE SAMPLE PER 3-YEAR CYCLE PER ENTRY POINT IF THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.040 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.030 MG/L FOR 2 CONSECUTIVE YEARS OR THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.020 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.015 MG/L FOR 1 YEAR. THE SAMPLE SHALL BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE WITHIN THE 3-YEAR CYCLE BEGINNING ON JANUARY 1 FOLLOWING THE QUARTER IN WHICH THE SYSTEM QUALIFIES FOR REDUCED MONITORING. SYSTEMS THAT QUALIFY FOR REDUCED MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.080 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.060 MG/L. SYSTEMS THAT EXCEED THESE LEVELS SHALL RESUME ROUTINE MONITORING AS PRESCRIBED IN CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING

THE QUARTER IN WHICH THE SYSTEM EXCEEDS 0.080 MG/L FOR TTHMS OR 0.060 MG/L FOR HAA5.

(ix) BEGINNING JANUARY 1, 2004, MONITOR DAILY FOR CHLORITE IF THE SYSTEM USES CHLORINE DIOXIDE FOR DISINFECTION OR OXIDATION, OR USES A SOURCE THAT HAS BEEN TREATED WITH CHLORINE DIOXIDE. SYSTEMS SHALL TAKE AT LEAST ONE DAILY SAMPLE AT THE ENTRY POINT. IF A DAILY SAMPLE EXCEEDS THE CHLORITE MCL, THE SYSTEM SHALL TAKE 3 ADDITIONAL SAMPLES WITHIN 24 HOURS FROM THE SAME LOT, BATCH, MACHINE, CARRIER VEHICLE, OR POINT OF DELIVERY. THE CHLORITE MCL IS BASED ON THE AVERAGE OF THE REQUIRED DAILY SAMPLE PLUS ANY ADDITIONAL SAMPLES.

(x) BEGINNING JANUARY 1, 2004, MONITOR MONTHLY FOR BROMATE IF THE SYSTEM USES OZONE FOR DISINFECTION OR OXIDATION, OR USES A SOURCE THAT HAS BEEN TREATED WITH OZONE.

(A) *ROUTINE MONITORING.* SYSTEMS SHALL TAKE ONE SAMPLE PER MONTH FOR EACH ENTRY POINT THAT USES OZONE WHILE THE OZONATION SYSTEM IS OPERATING UNDER NORMAL CONDITIONS.

(B) *REDUCED MONITORING.* SYSTEMS MAY REDUCE MONITORING FOR BROMATE FROM MONTHLY TO QUARTERLY IF THE SYSTEM DEMONSTRATES

THAT THE AVERAGE SOURCE WATER BROMIDE CONCENTRATION IS LESS THAN 0.05 MG/L BASED UPON REPRESENTATIVE MONTHLY BROMIDE MEASUREMENTS FOR 1 YEAR. SYSTEMS ON REDUCED MONITORING SHALL CONTINUE MONTHLY SOURCE WATER BROMIDE MONITORING. IF THE RUNNING ANNUAL AVERAGE SOURCE WATER BROMIDE CONCENTRATION, COMPUTED QUARTERLY, IS EQUAL TO OR EXCEEDS 0.05 MG/L, THE SYSTEM SHALL REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A).

(2) Vended water systems shall monitor in accordance with paragraph (1) except that vended water systems qualifying for permit by rule under § 109.1005(b) (relating to permit requirements), for each entry point shall:

(i) Monitor monthly for microbiological contaminants.

(ii) Monitor annually for total dissolved solids, lead and cadmium.

(iii) Conduct special monitoring as required by the Department.

(b) *Special monitoring requirements for unregulated contaminants.* Bottled water and vended water systems, retail water facilities and bulk water hauling systems, except vended water systems permitted by rule, shall monitor for the unregulated contaminants in accordance with the initial monitoring schedule for VOCs as prescribed in subsection (a).

(c) *Sampling requirements.*

(1) For bottled water and vended water systems, retail water facilities and bulk water hauling systems, samples taken to determine compliance with MCLs, MRDLS,[AND] monitoring requirements, including special monitoring requirements for unregulated contaminants, and treatment techniques shall be taken from each entry point.

(i) For bottled water systems, each entry point means each finished bottled water product. If multiple sources are used for a product and are not blended prior to bottling, the bottled water product for each source shall be considered a different product for monitoring purposes.

(ii) For bulk water hauling systems, retail water facilities and vended water systems, each entry point shall mean a point of delivery to the consumer from each carrier vehicle, machine or dispenser representative of each source.

(2) For the purpose of determining compliance with the monitoring and analytical requirements established under this subchapter, the Department will consider only those samples analyzed by a laboratory certified by the Department, except that measurements of turbidity, fluoridation operation, residual disinfection concentration, temperature and pH may be performed by a person meeting the requirements of § 109.1008(c) (relating to systems management responsibilities).

(3) Public water suppliers shall assure that samples for laboratory analysis are properly collected and preserved, are collected in proper containers, do not exceed maximum holding times between collection and analysis and are handled in accordance with guidelines governing quality control which may be established by the Department. A

public water supplier who utilizes a certified laboratory for sample collection as well as analysis satisfies the requirements of this subsection.

(4) Compliance monitoring samples for VOCs, as required under subsection (a)(1)(iii), and for the unregulated contaminants as required under subsection (b), shall be collected by a person properly trained by a laboratory certifed by the Department to conduct VOC or vinyl chloride analysis.

(5) Compliance monitoring samples required under subsections (a)(1)(iii) and (b) may be composited in accordance with 40 CFR 141.24(g)(7) (relating to organic chemicals other than total trihalomethanes, sampling and analytical requirements) except:

(i) Samples from groundwater entry points may not be composited with samples from surface water entry points.

(ii) Samples from one type of bottled water product or vended water product may not be composited with samples from another type of bottled water product or vended water product.

(iii) Samples used in compositing shall be collected in duplicate.

(iv) If a VOC listed under 40 CFR 141.61(a) is detected at an entry point, samples from that entry point may not be composited for subsequent compliance or repeat monitoring requirements.

(v) Samples obtained from an entry point which contains water treated by a community water supplier or nontransient noncommunity water supplier to specifically

meet an MCL for a VOC listed under 40 CFR 141.61(a) may not be composited with other entry point samples.

(d) *Repeat monitoring for microbiological contaminants.*

(1) If a sample collected in accordance with subsection (a)(1)(i) is found to be total coliform-positive:

(i) The bottled water system shall collect a set of 3 additional samples (check) from the same lot or batch of the type of product.

(ii) The vended water, retail water facility or bulk water hauling systems shall collect a set of four additional samples (check) from the same entry point (machine, point of delivery or carrier vehicle).

(2) Samples shall be collected for analysis within 24 hours of being notified of the total coliform-positive sample. The Department may extend this 24-hour collection limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the check samples analyzed within 30 hours of collection. A logistical problem outside the system's control may include a coliform-positive result received over a holiday or weekend in which the services of a Department certified laboratory are not available within the prescribed sample holding time.

(3) If a check sample is total coliform-positive, the system shall be deemed to have violated the MCL for total coliforms established under § 109.1002 (relating to MCLs, MRDLS or treatment techniques).

§ 109.1004. Public notification.

(a) *General public notification requirements.* A bottled water, vended water, retail water or bulk water supplier shall give public notification in accordance with this section. In addition, a bulk water supplier shall give public notification in accordance with §§ 109.401(a) and 109.406(b) (relating to general public notification requirements; and public notice requirements for unregulated contaminants).

(1) A bottled water, vended water, retail water or bulk water supplier who knows that a primary MCL OR AN MRDL has been exceeded or treatment technique performance standard has been violated or has reason to believe that circumstances exist which may adversely affect the quality of drinking water, including, but not limited[,] to, source contamination, spills, accidents, natural disasters or breakdowns in treatment, shall report the circumstances to the Department within 1 hour of discovery of the problem.

(2) If the Department determines, based upon information provided by the bottled water, vended water, retail water or bulk water supplier or other information available to the Department, that the circumstances present an imminent hazard to the public health, the water supplier shall issue a water supply warning approved by the Department and, if applicable, initiate a program for product recall approved by the Department under this

subsection. The water supplier shall be responsible for disseminating the notice in a manner designed to inform users who may be affected by the problem.

(i) Within 4 hours of the Department's determination that an imminent hazard is present, the water supplier shall provide the notice to newspapers, radio and television media serving the affected public, or directly notify affected users in a manner approved by the Department. The water supplier shall also notify key public officials as designated in the system's emergency response plan.

(ii) If the notice provided under subparagraph (i) does not ensure that the affected public is adequately notified, the Department may require the water supplier to further disseminate the notice in an appropriate manner which may include direct mailings, publication in newspapers or other paid advertising, or postings.

(iii) A water supply warning shall be followed by further notices designed to inform the public on a continuing basis as to the expected duration of the hazard, progress towards solving the problem, and measures that should be taken by users to reduce their risk. These notices shall be given at intervals and in a manner directed by the Department as long as the threat to public health continues.

(iv) The water supply warning shall continue until the Department is satisfied that no significant threat to the public health remains and approves a notice canceling the warning. The water supplier is responsible for disseminating the cancellation of the water supply warning in a manner similar to the issuance of the warning.

(b) *Description and content of notice.* Notice given under this section shall be written in a manner reasonably designed to fully inform the users of the system. When appropriate or as designated by the Department, additional notice in a foreign language shall be given.

(1) The notice shall be conspicuous and may not use technical language, small print or other methods which would frustrate the purpose of the notice.

(2) The notice shall disclose material facts regarding the subject, including the nature of the problem and, when appropriate, a clear statement that an MCL OR MRDL has been violated and preventive measures that should be taken by the public.

(3) Notices shall include a balanced explanation of the significance or seriousness to the public health of the subject of the notice including potential adverse health effects, the population at risk, a clear explanation of steps taken by the supplier to correct the problem, necessity for seeking alternative supplies, guidance on safeguards and alternatives available to users, and the results of additional sampling. In addition, bottled water and vended water systems, retail water facilities and bulk water hauling system notices shall describe a program for product recall, if applicable.

(4) The notice shall include the telephone number of the owner, operator or designee of the public water system as a source of additional information concerning the notice.

(5) In all notices, except for those required by § 109.401(a)(2), when providing the information on potential adverse health effects required by subsection (b)(3), the water

supplier shall include language established by the EPA for the contaminant under 40 CFR 141.32(e) (relating to mandatory health effects language) or 40 CFR 143.5(b) (relating to public notices for fluoride).

(c) *Notice by the Department.* If a water supplier fails to give notice to the public as required by this section, the Department may perform this notification on behalf of the supplier of water and may assess costs of notification on the responsible water supplier. Issuance of public notice by the Department under the section does not divest a public water supplier of legal responsibility for issuance of public notification otherwise required by the subchapter.

§ 109.1005. Permit requirements.

(a) *General permit requirement.* A person may not construct or operate a bottled water or vended water system, retail water facility or bulk water hauling system without first having obtained a public water system permit under subsection (b) or (e).

(b) *Special permit by rule requirement for vended water systems.*

(1) A person constructing and operating a vended water system shall obtain a separate and distinct permit under subsection (d) for each water vending machine owned by the same person unless the vended water system satisfies the conditions in this subsection. A separate and distinct permit by rule will be required for each Department region in which the water vending machines are located. The Department retains the right to require a

vended water system that meets the requirements of this subsection to obtain a permit, if, in the judgment of the Department, the vended water system cannot be adequately regulated through the standardized specifications and conditions. A vended water system which is released from the obligation to obtain a permit shall comply with the other requirements of this subchapter, including design, construction and operation requirements.

(i) A vended water system in which all water vending machines are located in the same Department region.

(ii) A vended water system which has as its sole source of water, finished water from existing permitted community water systems and uses only NAMA approved water vending machines satisfies the permit requirement of the act.

(2) A vended water system covered under this subsection shall register with the Department on forms provided by the Department. Amendments to the registration shall be filed when a substantial modification is made to the system. Descriptions of modifications shall be filed within 30 days of operation of the modification.

(c) *Special permit by rule requirement for bottled water systems.* A person owning or operating a bottled water system in this Commonwealth permitted under this chapter shall obtain an amended permit before making substantial modifications to the processing and bottling facilities unless the bottled water system satisfies the conditions in paragraphs (1)—(5). The permit by rule does not apply to the collection facilities. The Department retains the right to require a bottled water system that meets the requirements of

paragraphs (1)—(5) to obtain a permit, if, in the judgment of the Department, the bottled water system cannot be adequately regulated through the standardized specifications and conditions. A bottled water system which is released from the obligation to obtain a permit shall comply with the other requirements of this subchapter, including design, construction and operation requirements. The following are the conditions for a permit by rule:

(1) The bottled water system has as its sole source of water permitted groundwater sources which are not under the direct influence of surface water as determined through the Department's *Guidance for Surface Water Identification* protocol or finished water from a Department approved community water system.

(2) The water quality of the sources does not exceed the Food and Drug Administration quality standards for primary (that is, health-related) chemical and radiological contaminants specified in 21 CFR 165.110 (relating to bottled water) as determined under sampling conducted under subsection (e)(4)(ii) and requires treatment no greater than disinfection to provide water of a quality that meets the primary MCLs established under Subchapter B (relating to MCLs and treatment techniques).

(3) Proof that the facilities meet the standards of the Food and Drug Administration in 21 CFR Parts 110, 129 and 165 (relating to current good manufacturing practice in manufacturing, packing, or holding human food; processing and bottling of bottled drinking water; and beverages) and the IBWA Model Bottled Water Code as determined by an onsite evaluation conducted by a Nationally recognized, independent, not-for-profit third-party organization such as NSF or other organization acceptable to the Department.

The onsite evaluation shall be conducted annually. The proof shall consist of the report issued by the organization which shall be submitted to the Department within 30 days following the completion of the onsite evaluation. To be acceptable to the Department, the organization shall:

(i) Be accredited by ANSI as a third-party inspection/evaluation organization.

(ii) Have well developed, documented policies, procedures and contracts to support Department enforcement actions for meeting compliance objectives.

(4) A bottled water system intending to operate under this subsection shall submit written notification to the Department with documentation that the system complies with paragraphs (1)—(3).

(5) A bottled water system operating under this subsection shall file descriptions of substantial modifications made to the system to the Department within 30 days of operation of the modification. The description shall include documentation that the modification meets the following requirements as applicable:

(i) Compliance with the product water-contact materials and treatment chemical additives toxicological requirements of § 109.606 (relating to chemicals, materials and equipment) or alternatively, the Food and Drug Administration standards in 21 CFR Part 129.

(ii) Validated treatment technologies for the reduction of contaminants. Validated treatment technologies are those that have been permitted by the Department under this

chapter at the bottled water system operating under the permit by rule or certified to an applicable ANSI/NSF standard by NSF or other certification organization acceptable to the Department or verified under the EPA Environmental Technology Verification Program. To be acceptable to the Department, a certification organization other than NSF shall be accredited by ANSI as a third-party certification organization and meet the requirements under § 109.606(d) as applicable to the appropriate ANSI/NSF standard for the treatment technology.

(6) The Department will publish a notice in the *Pennsylvania Bulletin* of its determination that a bottled water system has complied with paragraphs (1)—(4) and is operating under the permit by rule. The Department will publish a notice in the *Pennsylvania Bulletin* of descriptions submitted under paragraph (5) of substantial modifications made by a bottled water system operating under the permit by rule.

(d) *Permit amendments.* A person may not substantially modify a bottled water or vended water system, retail water facility or bulk water hauling system operated under a public water system permit without obtaining a permit amendment from the Department or otherwise complying with subsection (f).

(e) *Permit applications.* An application for a public water system permit for a bottled water or vended water system, retail water facility or bulk water hauling system shall be submitted in writing on forms provided by the Department and shall be accompanied by plans, specifications, engineer's report, water quality analyses and other data, information or documentation

reasonably necessary to enable the Department to determine compliance with the act and this chapter. The Department will make available to the applicant the *Public Water Supply Manual*, available from the Bureau of Water Supply Management, Post Office Box 8467, Harrisburg, Pennsylvania 17105-8467 which contains acceptable design standards and technical guidance. Water quality analyses shall be conducted by a laboratory certified under this chapter. An application for a public water system permit for a bottled water or vended water system, retail water facility or bulk water hauling system shall include:

(1) The signature of the appropriate individual identified in § 109.503(a)(1)(i) (relating to public water system construction permits).

(2) Plans, specifications and engineer's report or modules prepared by or under the supervision of a professional engineer registered to practice in this Commonwealth, or in the state in which the water system is located, except that manufacturer's drawings and specifications for equipment or vending machines may be submitted in lieu of plans and specifications, as prescribed in this section, for the equipment or machines.

(3) The front cover or flyleaf of each set of drawings, and of each copy of the specifications and engineer's report, except for manufacturer's drawings and specifications, shall bear the signature and imprint of the seal of the registered professional engineer. Each drawing shall bear an imprint or a legible facsimile of the seal.

(4) Information describing new sources as follows:

(i) A comprehensive sanitary survey of the physical surroundings of each new source of raw water.

(ii) An evaluation of the quantity and quality of the raw water available from each new source. The evaluation shall include data for each primary and secondary contaminant and other contaminants the Department determines necessary to evaluate potability of the source. When a new source is finished water from another public water system, the most recent quality data if in compliance with the monitoring requirements of this chapter, obtained from the public water system supplying the finished water may be submitted.

(5) An erosion and sedimentation control plan which meets the requirements in Chapter 102 (relating to erosion and sediment control) when earthmoving activities are involved.

(6) In lieu of compliance with paragraphs (2)—(5), the Department may accept approval of an out-of-State systems' source and facilities by the agency having jurisdiction over drinking water in that state if the supplier submits proof of the approval by the other State agency.

(7) In addition to the information required under paragraphs (1)--(6), an application for a bottled water system permit shall include:

(i) An analysis of the quality of the manufactured water for each bottled water product. The analysis shall include data for each primary and secondary contaminant under § 109.1002 (relating to MCLs, MRDLS or treatment techniques).

(ii) A copy of each label of identification to be affixed to each type of bottled water product and trade name distributed by the public water system.

(iii) Proof that the system is in compliance with the standards of the Food and Drug Administration contained in 21 CFR Part 129.

(A) For out-of-State bottled water systems, the proof shall consist of the report issued by a Nationally recognized organization which inspects bottled water systems for compliance with 21 CFR Part 129, such as NSF, or another organization, state or country which utilizes an inspection protocol as stringent as NSF's protocol.

(B) For in-State bottled water systems, the proof shall consist of an inspection report issued by the Department.

(8) In addition to the information required under paragraphs (1)—(6), an application for a bulk water hauling system shall include:

(i) A detailed description of each water transportation tank, fill connection, outlet valve, hose, pump and other appurtenances including the manner in which they will be protected from contamination.

(ii) A description of the exact location where withdrawals will be made from each source of supply.

(9) In addition to the information required under paragraphs (1)—(6), an application for a vended water system shall include:

(i) A description of the exact location of each water vending machine.

(ii) A copy of the system's operation and maintenance plan detailing machine maintenance schedules.

(iii) A copy of the NAMA certification for each type of machine, if a certification has been issued.

(10) In addition to the information required under paragraphs (1)—(6), an application for a retail water facility shall include:

(i) A copy of NSF certificates, when applicable, for system components.

(ii) A copy of product labels, when applicable.

(f) *Permit amendment applications.* A bottled water or vended water system, retail water facility or bulk water hauling system operating under a public water system permit shall obtain a permit amendment before making a substantial modification to the public water system.

(1) A water supplier shall submit an application for a major permit amendment in accordance with subsection (e), if the proposed modification constitutes a major change to the public water system.

(i) For bottled water systems and retail water facilities, typical modifications which may be considered major changes are proposed new sources, additions or deletions of treatment techniques or processes and new types of products.

(ii) For bulk water hauling systems typical modifications which may be considered major changes are proposed new sources, additions or deletions of treatment techniques or processes, pumping stations and storage reservoirs.

(iii) For vended water systems, typical modifications which may be considered major changes are proposed additions or deletions of treatment techniques or processes, new product lines or types of products and the addition to the system of machines not certified by NAMA. For new sources, the supplier shall obtain a separate and distinct permit in accordance with subsection (e) unless the system qualifies for a permit by rule under subsection (b).

(2) A water supplier shall submit a written request to the Department for a minor permit amendment if the proposed modification constitutes a relatively minor change to the public water system. A request for a permit amendment under this paragraph shall describe the proposed change in sufficient detail to allow the Department to adequately evaluate the proposal.

(i) For bottled water systems and retail water facilities, typical modifications which can generally be accomplished under this paragraph include:

(A) Changes in treatment chemicals.

(B) Construction of storage tanks designed to standard specifications.

(C) Installation of replacement equipment.

(D) Changes in legal status, such as transfers of ownership, incorporation or mergers.

(ii) For bulk water hauling systems, typical modifications which can generally be accomplished under this paragraph include:

(A) Changes in treatment chemicals.

(B) Replacement of tank or reservoir linings or similar materials in contact with the water supply.

(C) Additions and modifications to water carrier vehicles and standpipes designed to standard specifications.

(D) Transmission mains.

(E) Changes in legal status, such as transfers of ownership, incorporation or mergers.

(iii) For vended water systems, typical modifications which can generally be accomplished under this paragraph include changes in treatment chemicals, repair or replacement of machines, and the addition of new NAMA certified machines to a permitted vended water system.

(3) The Department determines whether a particular modification requires a permit amendment under subsection (f)(1) or a permit amendment under subsection (f)(2). The Department's determination will include consideration of the magnitude and complexity of the proposed change and the compliance history of the public water system.

(g) *Emergency permits.* In emergency circumstances, the Department may issue permits for construction, operation or modification to a bottled water or bulk water hauling system, which the Department determines may be necessary to assure that potable drinking water is available to the public.

(1) Emergency permits shall be limited in duration and may be conditioned on additional monitoring, reporting and the implementation of appropriate emergency response measures. The Department may revoke an emergency permit if it finds the water system is not complying with drinking water standards or the terms or conditions of the permit. An authorization for construction, operation or modifications obtained under an emergency permit will not extend beyond the expiration of the emergency permit unless the public water system receives a permit or permit amendment under subsection (e) or (f) for the construction, operation or modification initiated during the emergency.

(2) State and Federal agencies conducting emergency response bulk water hauling operations need not obtain a permit under this subchapter, if a Department-approved source is utilized and adequate monitoring specified by the Department is conducted to assure compliance with the microbiological MCL specified in § 109.1002.

(h) *Department's review.* Applications for public water system permits and permit amendments for bottled water and vended water systems, retail water facilities and bulk water hauling systems will be reviewed in accordance with the following procedures:

(1) Applications will be reviewed in accordance with accepted engineering practices. The approval of plans, specifications and engineer's reports by the Department is limited to the sanitary features of design and other features of public health significance.

(2) The Department will not accept an application for review until the application is determined to be complete. A complete application is one which includes the information specified in this chapter and other information necessary for the Department to ensure compliance with this chapter.

(3) As a condition of receiving a public water system permit, a bottled water system shall comply with the standards of the Food and Drug Administration contained in 21 CFR Part 129. Evidence shall be presented demonstrating compliance with subsection (e)(7)(iii).

(4) In reviewing a permit application under this chapter, the Department may consider the following:

(i) Adherence to standards of the Department in Subchapter F (relating to design and construction standards) and § 109.1006 (relating to design and construction standards).

(ii) Compliance by the proposed project with applicable statutes administered by the Commonwealth, river basin commissions created by interstate compact or Federal environmental statutes or regulations.

(i) *Permit fees.*

(1) An application for a new permit or major permit amendment under subsection (f)(1) for a bottled water or vended water system, retail water facility or bulk water hauling system shall be accompanied by a check in the amount of $750 payable to the "Commonwealth of Pennsylvania," except that:

(i) An application from an out-of-State bottled water system submitting proof of out-of-State approval under subsection (e)(6) shall be accompanied by a fee of $100.

(ii) An application from a bottled water system, retail water facility or bulk water hauling system purchasing finished water, as its sole source of water, from a public water system operating under a permit issued under this chapter, and a vended water system permitted by rule, shall submit a fee of $300.

(2) A fee is not required for an emergency permit under subsection (g) or a minor permit amendment under subsection (f)(2).

§ 109.1006. Design and construction standards.

(a) *Application of standards.* Standards in this section apply to design and construction or modification of bottled water and vended water systems, retail water facilities and bulk water hauling systems regardless of whether a Department permit or permit amendment is required. The standards apply to new facilities and facility modifications unless otherwise specifically indicated.

(b) *Acceptable design.* Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall be designed to provide an adequate quality of water to the public. The design shall ensure that the system will, upon completion, be capable of providing water that complies with the primary and secondary MCLs, MRDLS and treatment techniques established in § 109.1002 (relating to MCLs, MRDLS or treatment techniques). The Department may approve control techniques, such as nonremoval processes, which abate the problems associated with a secondary contaminant, and achieve the objective of the secondary MCL.

(1) Designs of bottled water and vended water systems, retail water facilities and bulk water hauling systems shall conform to accepted standards of engineering and design in the water supply, bottled water, retail water or bulk water hauling industry, as applicable.

(2) Designs of bottled water and vended water systems, retail water facilities and bulk water hauling systems shall be in accordance with Subchapter F (relating to design and construction standards) except that § 109.607 (relating to pressures) does not apply.

§ 109.1009. System operational requirements.

(a) *General facilities operation.* Facilities of bottled water and vended water systems, retail water facilities and bulk water hauling systems approved by written permit from the Department shall be operated in a manner consistent with the terms and conditions of the permit to achieve the level of treatment for which the facilities were designed.

(b) *Special bottled water system requirements.* Bottled water systems shall be operated in accordance with the standards of the Food and Drug Administration contained in 21 CFR Part 129 (relating to processing and bottling of bottled drinking water). Proof of this determination shall be submitted to the Department annually under § 109.1008(a)(1)(ii) (relating to system management responsibilities).

(c) *Disinfectant residual requirements.* A disinfectant residual acceptable to the Department shall be maintained at the entry point of the bottled water or vended water system, retail water facility or bulk water hauling system sufficient to assure compliance with the microbiological MCL specified in § 109.1002 (relating to MCLs, MRDLS or treatment techniques). The Department will determine the acceptable residual of the disinfectant considering [such] factors SUCH as type and form of disinfectant, temperature and pH of the water, and other characteristics of the water system.

(d) *Disinfection of facilities following construction, modification or repair.* After repairing, constructing or modifying a bottled water, vended water, retail water or bulk water hauling facility and before the facility is placed in service, it shall be properly

cleaned and disinfected. Cleaning shall be in accordance with 21 CFR 129.80(c) and (d) (relating to processes and controls) and disinfection shall be with 50 ppm chlorine for 1 minute at 75° F or the equivalent.

(e) *Dedicated equipment.* Bottled water, vended water, retail water and bulk water may not be transported, stored or processed through equipment or lines used for any nonfood product. Bottled water, vended water, retail water and bulk water transported, stored or processed through equipment used for a food product other than water shall comply with the following cleaning and disinfection procedures:

(1) When foods other than milk or dairy products have been transported, stored, processed or bottled, each time before water is transported, stored, processed or bottled through the same lines or equipment, product contact surfaces shall be thoroughly cleaned and disinfected in accordance with subsection (d).

(2) When milk or other dairy products are transported, stored or processed or bottled through the same lines or equipment as bottled water, vended water, retail water and bulk water, the feed line used to convey water to the filler shall be dedicated to water only. Each time before water is transported, stored or processed or bottled, other product contact surfaces shall be disassembled and cleaned in accordance with subsection (d).

(f) *Special operational requirements for bottled water systems and retail water facilities.*

(1) Bottled water systems and retail water facilities using ozone as a final disinfectant shall maintain an ozone residual of 0.1—0.4 ppm in the bottle immediately after filling.

(2) When ozone is used as a disinfectant for bottled water or retail water, gaskets, o-rings and similar flexible material shall be made of silicone rubber, teflon or other ozone-resistant material. These flexible parts shall be replaced when they show evidence of surface deterioration.

(g) *Special operational requirements for water vending machine systems.*

(1) Each vending machine shall be cleaned, serviced and sanitized in accordance with the manufacturer's service manuals, but at least once every 2 weeks. A record of all cleaning and maintenance operations for each machine shall be kept by the operator with a copy retained in the interior of the machine.

(2) A notice to consumers listing the industry's recommendations for the care, cleaning and type of container suitable for use with the water vending machine shall be posted at each water vending machine.

(h) *Special operational requirements for bulk water hauling systems.*

(1) Transportation tanks or containers shall be sealed at all times except when being cleaned, filled or when water is being delivered.

(2) Hoses, pumps, connections and fittings shall be sanitized prior to delivering water using a disinfectant solution containing at least 50 ppm of chlorine at 75°F for 1 minute or the equivalent.

(3) Hoses, pumps, connections and fittings used for loading and delivering potable water shall be stored, capped or covered and used so as to be protected from contamination at all times.

(4) A record of cleaning and sanitizing activities conducted on the interior of the transportation tank or transfer equipment shall be maintained with the vehicle and shall be available to the Department upon request.

Subchapter K. LEAD AND COPPER

§ 109.1105. Permit requirements.

(a) *General permit requirements.* A person may not construct, substantially modify or operate corrosion control treatment facilities to comply with this subchapter without having obtained the appropriate permit approvals under Subchapter E (relating to permit requirements) and this section.

(b) *Construction permits and permit amendments.* The water supplier shall submit an application for a public water system construction permit for a newly-created system or an amended construction permit for a currently-permitted system for corrosion control treatment facilities by the applicable deadline established in § 109.1102(b)(2) (relating to action levels and treatment technique requirements), unless the system complies with paragraph (1) or (2) or otherwise qualifies for a minor permit amendment under § 109.503(b) (relating to public water

system construction permits). The permit application shall comply with § 109.503 and contain the applicable information specified therein. The application shall include recommended water quality parameter performance requirements for optimal corrosion control treatment as specified in § 109.1102(b)(5) and other data, information or documentation necessary to enable the Department to consider the application for a permit for construction of the facilities.

(1) *Community water system minor permit amendments*. The community water supplier may submit a written request for an amended construction permit to the Department if the system satisfies the conditions under subparagraphs (i)--(iv). A request for an amended construction permit under this paragraph shall describe the proposed change in sufficient detail to allow the Department to adequately evaluate the proposal.

(i) The system is a small water system.

(ii) The sources of supply for the system are not surface water sources.

(iii) Except for corrosion control treatment, the sources require treatment no greater than disinfection to provide water of a quality that meets the MCLs and treatment technique requirements established under Subchapter B (relating to MCLs, MRDLS or treatment technique requirements).

(iv) The proposed corrosion control treatment is limited to alkalinity or pH adjustment, or both.

(2) *Nontransient noncommunity water system permits.* The nontransient noncommunity water supplier is not required to obtain a construction permit or permit amendment under subsection (b) if the system satisfies the following specifications and conditions:

(i) The system is a small water system.

(ii) The sources of supply for the system are not surface water sources.

(iii) Except for corrosion control treatment, the sources require treatment no greater than disinfection to provide water of a quality that meets the MCLs and treatment technique requirements established under Subchapter B.

(iv) The proposed corrosion control treatment is limited to alkalinity or pH adjustment, or both.

(v) The water supplier files a brief description of the proposed treatment, including recommended water quality parameter performance requirements for optimal corrosion control treatment as specified in § 109.1102(b)(5), on forms acceptable to the Department. Descriptions of modifications may be filed prior to construction if the water supplier desires technical assistance, but shall be filed within 30 days of initiation of operation of the modification.

(c) *Operation permits.* Except for nontransient noncommunity water systems complying with subsection (b)(2), the water supplier shall obtain an operation permit or amended operation permit following completion of construction and prior to initiation of operation

of corrosion control treatment facilities. The permit will be issued in accordance with § 109.504 (relating to public water system operation permits). The Department will not issue an operation permit under this subchapter unless the water system complies with the operation and maintenance plan requirements under § 109.1107(b) (relating to system management responsibilities) and the operator certification and training requirements under § 109.1107(c). The water supplier for a community water system or nontransient noncommunity water system shall submit a request for Department designation of optimal corrosion control treatment performance requirements in accordance with § 109.1102(b)(2) and the Department will issue an amended operation permit designating the performance requirements as specified in § 109.1102(b)(5).

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federal register

Wednesday
December 16, 1998

Part IV

Environmental Protection Agency

40 CFR Parts 9, 141, and 142
National Primary Drinking Water Regulations: Disinfectants and Disinfection Byproducts; Final Rule

114. White, M. C., Thompson, D., Harrington, G. W., and P.S. Singer. 1997. Evaluating Criteria for Enhanced Coagulation Compliance. *AWWA*, 89:5:64.
115. Xie, Yuefeng. 1995. Effects of Sodium Chloride on DBP Analytical Results, Extended Abstract, Division of Environmental Chemistry, American Chemical Society Annual Conference, Chicago, IL, Aug. 21–26, 1995.

List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Parts 141 and 142

Analytical methods, Drinking water, Environmental protection, Incorporation by reference, Intergovernmental relations, Public utilities, Reporting and recordkeeping requirements, Utilities, Water supply.

Dated: November 30, 1998.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

PART 9—[AMENDED]

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–1, 300j–2, 300j–3, 300j–4, 300j–9, 1857 *et seq.*, 6901–6992k, 7401–7671q, 7542, 9601–9657, 11023, 11048.

2. In § 9.1 the table is amended by adding under the indicated heading: the new entries in numerical order to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB control No.
* * * * *	
National Primary Drinking Water Regulations	
* * * * *	
141.130–141.132	2040–0204
141.134–141.135	2040–0204
* * * * *	

PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

3. The authority citation for part 141 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–4, 300j–9, and 300j–11.

4. Section 141.2 is amended by adding the following definitions in alphabetical order to read as follows:

§ 141.2 Definitions.

* * * * *

Enhanced coagulation means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

* * * * *

Enhanced softening means the improved removal of disinfection byproduct precursors by precipitative softening.

* * * * *

GAC10 means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days.

* * * * *

Haloacetic acids (five) (HAA5) mean the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

* * * * *

Maximum residual disinfectant level (MRDL) means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a PWS is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a PWS is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels under Section 1412 of the Safe Drinking Water Act. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in § 141.65, operators may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.

* * * * *

Maximum residual disinfectant level goal (MRDLG) means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

* * * * *

Subpart H systems means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of subpart H of this part.

* * * * *

SUVA means Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV_{254}) (in m^{-1}) by its concentration of dissolved organic carbon (DOC) (in mg/L).

* * * * *

Total Organic Carbon (TOC) means total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

* * * * *

5. Section 141.12 is revised to read as follows:

§ 141.12 Maximum contaminant levels for total trihalomethanes.

The maximum contaminant level of 0.10 mg/L for total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform)) applies to subpart H community water systems which serve a population of 10,000 people or more until December 16, 2001. This level applies to community water systems that use only ground water not under the direct influence of surface water and serve a population of 10,000 people or more until December

16, 2003. Compliance with the maximum contaminant level for total trihalomethanes is calculated pursuant to § 141.30. After December 16, 2003, this section is no longer applicable.

6. Section 141.30 is amended by revising the the first sentences in paragraphs (d) and (f) and adding paragraph (h) to read as follows:

§ 141.30 Total trihalomethanes sampling, analytical and other requirements.

* * * * *

(d) Compliance with § 141.12 shall be determined based on a running annual average of quarterly samples collected by the system as prescribed in paragraph (b)(1) or (2) of this section. * * *

* * * * *

(f) Before a community water system makes any significant modifications to its existing treatment process for the purposes of achieving compliance with § 141.12, such system must submit and obtain State approval of a detailed plan setting forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not be adversely affected by such modification. * * *

* * * * *

(h) The requirements in paragraphs (a) through (g) of this section apply to subpart H community water systems which serve a population of 10,000 or more until December 16, 2001. The requirements in paragraphs (a) through (g) of this section apply to community water systems which use only ground water not under the direct influence of surface water that add a disinfectant (oxidant) in any part of the treatment process and serve a population of 10,000 or more until December 16, 2003. After December 16, 2003, this section is no longer applicable.

7. Section 141.32 is amended by revising the heading in paragraph (a) introductory text, the first sentence of paragraph (a)(1)(iii) introductory text, and the first sentence of paragraph (c), and adding paragraphs (a)(1)(iii)(E) and (e) (76) through (81), to read as follows:

§ 141.32 Public notification.

* * * * *

(a) *Maximum contaminant levels (MCLs), maximum residual disinfectant levels (MRDLs).* * * *

(1) * * *

(iii) For violations of the MCLs of contaminants or MRDLs of disinfectants that may pose an acute risk to human health, by furnishing a copy of the notice to the radio and television stations serving the area served by the public water system as soon as possible but in no case later than 72 hours after the violation. ***

* * * * *

(E) Violation of the MRDL for chlorine dioxide as defined in § 141.65 and determined according to § 141.133(c)(2).

* * * * *

(c) * * * The owner or operator of a community water system must give a copy of the most recent public notice for any outstanding violation of any maximum contaminant level, or any maximum residual disinfectant level, or any treatment technique requirement, or any variance or exemption schedule to all new billing units or new hookups prior to or at the time service begins.

* * * * *

(e) * * *

(76) *Chlorine.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlorine is a health concern at certain levels of exposure. Chlorine is added to drinking water as a disinfectant to kill bacteria and other disease-causing microorganisms and is also added to provide continuous disinfection throughout the distribution system. Disinfection is required for surface water systems. However, at high doses for extended periods of time, chlorine has been shown to affect blood and the liver in laboratory animals. EPA has set a drinking water standard for chlorine to protect against the risk of these adverse effects. Drinking water which meets this EPA standard is associated with little to none of this risk and should be considered safe with respect to chlorine.

(77) *Chloramines.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chloramines are a health concern at certain levels of exposure. Chloramines are added to drinking water as a disinfectant to kill bacteria and other disease-causing microorganisms and are also added to provide continuous disinfection throughout the distribution system. Disinfection is required for surface water systems. However, at high doses for extended periods of time, chloramines have been shown to affect blood and the liver in laboratory animals. EPA has set a drinking water standard for chloramines to protect against the risk of these adverse effects. Drinking water which meets this EPA standard is associated with little to none of this risk and should be considered safe with respect to chloramines.

(78) *Chlorine dioxide.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlorine dioxide is a health concern at certain levels of exposure. Chlorine dioxide is used in water treatment to kill bacteria and other disease-causing microorganisms and can be used to control tastes and odors. Disinfection is required for surface water systems. However, at high doses, chlorine dioxide-treated drinking water has been shown to affect blood in laboratory animals. Also, high levels of chlorine dioxide given to laboratory animals in drinking water have been shown to cause neurological effects on the developing nervous system. These neurodevelopmental effects may occur as a result of a short-term excessive chlorine dioxide exposure. To protect against such potentially harmful exposures, EPA requires chlorine dioxide monitoring at the treatment plant, where disinfection occurs, and at representative points in the distribution system serving water users. EPA has set a drinking water standard for chlorine dioxide to protect against the risk of these adverse effects.

Note: In addition to the language in this introductory text of paragraph (e)(78), systems must include either the language in paragraph (e)(78)(i) or (e)(78)(ii) of this section. Systems with a violation at the treatment plant, but not in the distribution system, are required to use the language in paragraph (e)(78)(i) of this section and treat the violation as a nonacute violation. Systems with a violation in the distribution system are required to use the language in paragraph (e)(78)(ii) of this section and treat the violation as an acute violation.

(i) The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, and do not include violations within the distribution system serving users of this water supply. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to present consumers.

(ii) The chlorine dioxide violations reported today include exceedances of the EPA standard within the distribution system serving water users. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including pregnant women, infants, and young children, may be especially susceptible to adverse effects of excessive exposure to chlorine dioxide-treated water. The purpose of this notice is to advise that such persons should consider reducing their risk of adverse effects from these chlorine dioxide violations by seeking alternate sources of water for human consumption until such exceedances are rectified. Local

and State health authorities are the best sources for information concerning alternate drinking water.

(79) *Disinfection byproducts and treatment technique for DBPs.* The United States Environmental Protection Agency (EPA) sets drinking water standards and requires the disinfection of drinking water. However, when used in the treatment of drinking water, disinfectants react with naturally-occurring organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). EPA has determined that a number of DBPs are a health concern at certain levels of exposure. Certain DBPs, including some trihalomethanes (THMs) and some haloacetic acids (HAAs), have been shown to cause cancer in laboratory animals. Other DBPs have been shown to affect the liver and the nervous system, and cause reproductive or developmental effects in laboratory animals. Exposure to certain DBPs may produce similar effects in people. EPA has set standards to limit exposure to THMs, HAAs, and other DBPs.

(80) *Bromate.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that bromate is a health concern at certain levels of exposure. Bromate is formed as a byproduct of ozone disinfection of drinking water. Ozone reacts with naturally occurring bromide in the water to form bromate. Bromate has been shown to produce cancer in rats. EPA has set a drinking water standard to limit exposure to bromate.

(81) *Chlorite.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlorite is a health concern at certain levels of exposure. Chlorite is formed from the breakdown of chlorine dioxide, a drinking water disinfectant. Chlorite in drinking water has been shown to affect blood and the developing nervous system. EPA has set a drinking water standard for chlorite to protect against these effects. Drinking water which meets this standard is associated with little to none of these risks and should be considered safe with respect to chlorite.

* * * * *

8. Subpart F is amended by revising the subpart heading and adding §§ 141.53 and 141.54 to read as follows:

Subpart F—Maximum Contaminant Level Goals and Maximum Residual Disinfectant Level Goals

* * * * *

§ 141.53—Maximum contaminant level goals for disinfection byproducts.

MCLGs for the following disinfection byproducts are as indicated:

Disinfection byproduct	MCLG (mg/L)
Chloroform	Zero
Bromodichloromethane	Zero
Bromoform	Zero
Bromate	Zero
Dichloroacetic acid	Zero
Trichloroacetic acid	0.3
Chlorite	0.8
Dibromochloromethane	0.06

§ 141.54 Maximum residual disinfectant level goals for disinfectants.

MRDLGs for disinfectants are as follows:

Disinfectant residual	MRDLG(mg/L)
Chlorine	4 (as Cl_2).
Chloramines	4 (as Cl_2).
Chlorine dioxide	0.8 (as ClO_2)

9. Subpart G is amended by revising the subpart heading and adding §§ 141.64 and 141.65 to read as follows:

Subpart G—National Revised Primary Drinking Water Regulations: Maximum Contaminant Levels and Maximum Residual Disinfectant Levels

* * * * *

§ 141.64 Maximum contaminant levels for disinfection byproducts.

(a) The maximum contaminant levels (MCLs) for disinfection byproducts are as follows:

Disinfection byproduct	MCL (mg/L)
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAA5)	0.060
Bromate	0.010
Chlorite	1.0

(b) *Compliance dates.* (1) *CWSs and NTNCWSs.* Subpart H systems serving 10,000 or more persons must comply with this section beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this section beginning December 16, 2003.

(2) A system that is installing GAC or membrane technology to comply with this section may apply to the State for an extension of up to 24 months past the dates in paragraphs (b)(1) of this section, but not beyond December 16, 2003. In granting the extension, States must set a schedule for compliance and may specify any interim measures that the system must take. Failure to meet the schedule or interim treatment requirements constitutes a violation of a National Primary Drinking Water Regulation.

(c) The Administrator, pursuant to Section 1412 of the Act, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for disinfection byproducts identified in paragraph (a) of this section:

Disinfection by-product	Best available technology
TTHM	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant
HAA5	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant.
Bromate	Control of ozone treatment process to reduce production of bromate.
Chlorite	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

§ 141.65 Maximum residual disinfectant levels.

(a) Maximum residual disinfectant levels (MRDLs) are as follows:

Disinfectant residual	MRDL (mg/L)
Chlorine	4.0 (as Cl_2).
Chloramines	4.0 (as Cl_2).
Chlorine dioxide	0.8 (as ClO_2).

(b) Compliance dates.

(1) CWSs and NTNCWSs. Subpart H systems serving 10,000 or more persons must comply with this section beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this subpart beginning December 16, 2003.

(2) Transient NCWSs. Subpart H systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the

chlorine dioxide MRDL beginning December 16, 2003.

(c) The Administrator, pursuant to Section 1412 of the Act, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum residual disinfectant levels identified in paragraph (a) of this section: control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

10. A new subpart L is added to read as follows:

Subpart L—Disinfectant Residuals, Disinfection Byproducts, and Disinfection Byproduct Precursors

§ 141.130 General requirements.

(a) The requirements of this subpart L constitute national primary drinking water regulations.

(1) The regulations in this subpart establish criteria under which community water systems (CWSs) and nontransient, noncommunity water systems (NTNCWSs) which add a chemical disinfectant to the water in any part of the drinking water treatment process must modify their practices to meet MCLs and MRDLs in §§ 141.64 and 141.65, respectively, and must meet the treatment technique requirements for disinfection byproduct precursors in § 141.135.

(2) The regulations in this subpart establish criteria under which transient NCWSs that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the MRDL for chlorine dioxide in § 141.65.

(3) EPA has established MCLs for TTHM and HAA5 and treatment technique requirements for disinfection byproduct precursors to limit the levels of known and unknown disinfection byproducts which may have adverse health effects. These disinfection byproducts may include chloroform; bromodichloromethane; dibromochloromethane; bromoform; dichloroacetic acid; and trichloroacetic acid.

(b) *Compliance dates.* (1) *CWSs and NTNCWSs.* Unless otherwise noted, systems must comply with the requirements of this subpart as follows. Subpart H systems serving 10,000 or more persons must comply with this subpart beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this subpart beginning December 16, 2003.

(2) *Transient NCWSs.* Subpart H systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this subpart beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this subpart beginning December 16, 2003.

(c) Each CWS and NTNCWS regulated under paragraph (a) of this section must be operated by qualified personnel who meet the requirements specified by the State and are included in a State register of qualified operators.

(d) *Control of disinfectant residuals.* Notwithstanding the MRDLs in § 141.65, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

§ 141.131 Analytical requirements.

(a) *General.* (1) Systems must use only the analytical method(s) specified in this section, or otherwise approved by EPA for monitoring under this subpart, to demonstrate compliance with the requirements of this subpart. These methods are effective for compliance monitoring February 16, 1999.

(2) The following documents are incorporated by reference. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at EPA's Drinking Water Docket, 401 M Street, SW, Washington, DC 20460, or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington DC. EPA Method 552.1 is in *Methods for the Determination of Organic Compounds in Drinking Water-Supplement II*, USEPA, August 1992, EPA/600/R-92/129 (available through National Information Technical Service (NTIS), PB92-207703). EPA Methods 502.2, 524.2, 551.1, and 552.2 are in *Methods for the Determination of Organic Compounds in Drinking Water-Supplement III*, USEPA, August 1995, EPA/600/R-95/131. (available through NTIS, PB95-261616). EPA Method 300.0 is in *Methods for the Determination of Inorganic Substances in Environmental Samples*, USEPA, August 1993, EPA/600/R-93/100. (available through NTIS, PB94-121811). EPA Method 300.1 is titled *USEPA Method 300.1, Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0*, USEPA, 1997, EPA/600/R-98/118 (available through NTIS, PB98-169196); also available from: Chemical Exposure Research Branch, Microbiological & Chemical Exposure Assessment Research Division, National Exposure Research Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH 45268, Fax Number: 513-569-7757, Phone number: 513-569-7586. Standard Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO_2 D, 4500-ClO_2 E, 6251 B, and 5910 B shall be followed in accordance with *Standard Methods for the Examination of Water and Wastewater, 19th Edition*, American Public Health Association, 1995; copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. Standard Methods 5310 B, 5310 C, and 5310 D shall be followed in accordance with the *Supplement to the 19th Edition of Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 1996; copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. ASTM Method D 1253-86 shall be followed in accordance with the *Annual Book of ASTM Standards*, Volume 11.01, American Society for Testing and Materials, 1996 edition; copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohoken, PA 19428.

(b) *Disinfection byproducts.* (1) Systems must measure disinfection byproducts by the methods (as modified by the footnotes) listed in the following table:

APPROVED METHODS FOR DISINFECTION BYPRODUCT COMPLIANCE MONITORING

Methodology[2]	EPA method	Standard method	Byproduct measured[1]			
			TTHM	HAA5	Chlorite[4]	Bromate
P&T/GC/EICD & PID	[3]502.2		X			
P&T/GC/MS	524.2		X			
LLE/GC/ECD	551.1		X			
LLE/GC/ECD		6251 B		X		
SPE/GC/ECD	552.1			X		
LLE/GC/ECD	552.2			X		
Amperometric Titration		4500-ClO_2 E			X	
IC	300.0				X	
IC	300.1				X	X

[1] X indicates method is approved for measuring specified disinfection byproduct.
[2] P&T = purge and trap; GC = gas chromatography; EICD = electrolytic conductivity detector; PID = photoionization detector; MS = mass spectrometer; LLE = liquid/liquid extraction; ECD = electron capture detector; SPE = solid phase extractor; IC = ion chromatography.
[3] If TTHMs are the only analytes being measured in the sample, then a PID is not required.
[4] Amperometric titration may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in § 141.132(b)(2)(i)(A). Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in § 141.132(b)(2)(i)(B) and (b)(2)(ii).

(2) Analysis under this section for disinfection byproducts must be conducted by laboratories that have received certification by EPA or the State. To receive certification to conduct analyses for the contaminants in § 141.64(a), the laboratory must carry out annual analyses of performance evaluation (PE) samples approved by EPA or the State. In these analyses of PE samples, the laboratory must achieve quantitative results within the acceptance limit on a minimum of 80% of the analytes included in each PE sample. The acceptance limit is defined as the 95% confidence interval calculated around the mean of the PE study data between a maximum and minimum acceptance limit of +/−50% and +/−15% of the study mean.

(c) *Disinfectant residuals.* (1) Systems must measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in the following table:

APPROVED METHODS FOR DISINFECTANT RESIDUAL COMPLIANCE MONITORING

Methodology	Standard method	ASTM method	Residual Measured[1]			
			Free chlorine	Combined chlorine	Total chlorine	Chlorine dioxide
Amperometric Titration	4500-Cl D	D 1253–86	X	X	X	
Low Level Amperometric Titration	4500-Cl E				X	
DPD Ferrous Titrimetric	4500-Cl F		X	X	X	
DPD Colorimetric	4500-Cl G		X	X	X	
Syringaldazin e (FACTS)	4500-Cl H		X			
Iodometric Electrode	4500-Cl I				X	
DPD	4500-ClO_2 D					X
Amperometric Method II	4500-ClO_2 E					X

[1] X indicates method is approved for measuring specified disinfectant residual.

(2) If approved by the State, systems may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide by using DPD colorimetric test kits.

(3) A party approved by EPA or the State must measure residual disinfectant concentration.

(d) *Additional analytical methods.* Systems required to analyze parameters not included in paragraphs (b) and (c) of this section must use the following methods. A party approved by EPA or the State must measure these parameters.

(1) *Alkalinity.* All methods allowed in § 141.89(a) for measuring alkalinity.

(2) *Bromide.* EPA Method 300.0 or EPA Method 300.1.

(3) *Total Organic Carbon (TOC).* Standard Method 5310 B (High-Temperature Combustion Method) or Standard Method 5310 C (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method) or Standard Method 5310 D (Wet-Oxidation Method). TOC samples may not be filtered prior to analysis. TOC samples must either be analyzed or must be acidified to achieve pH less than 2.0 by minimal addition of phosphoric or sulfuric acid as soon as practical after sampling, not to exceed 24 hours. Acidified TOC samples must be analyzed within 28 days.

(4) *Specific Ultraviolet Absorbance (SUVA).* SUVA is equal to the UV absorption at 254nm (UV_{254}) (measured in m^{-1} divided by the dissolved organic carbon (DOC) concentration (measured as mg/L). In order to determine SUVA, it is necessary to separately measure UV_{254} and DOC. When determining SUVA, systems must use the methods stipulated in paragraph (d)(4)(i) of this section to measure DOC and the method stipulated in paragraph (d)(4)(ii) of this section to measure UV_{254}. SUVA must be determined on water prior to the addition of disinfectants/oxidants by the system. DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location.

(i) Dissolved Organic Carbon (DOC). Standard Method 5310 B (High-Temperature Combustion Method) or Standard Method 5310 C (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method) or Standard Method

5310 D (Wet-Oxidation Method). Prior to analysis, DOC samples must be filtered through a 0.45 µm pore-diameter filter. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet the following criteria: DOC < 0.5 mg/L. DOC samples must be filtered through the 0.45 µm pore-diameter filter prior to acidification. DOC samples must either be analyzed or must be acidified to achieve pH less than 2.0 by minimal addition of phosphoric or sulfuric acid as soon as practical after sampling, not to exceed 48 hours. Acidified DOC samples must be analyzed within 28 days.

(ii) Ultraviolet Absorption at 254 nm (UV_{254}). Method 5910 B (Ultraviolet Absorption Method). UV absorption must be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV_{254} samples must be filtered through a 0.45 µm pore-diameter filter. The pH of UV_{254} samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours.

(5) *pH.* All methods allowed in § 141.23(k)(1) for measuring pH.

§ 141.132 Monitoring requirements.

(a) *General requirements.* (1) Systems must take all samples during normal operating conditions.

(2) Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with State approval in accordance with criteria developed under § 142.16(f)(5) of this chapter.

(3) Failure to monitor in accordance with the monitoring plan required under paragraph (f) of this section is a monitoring violation.

(4) Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

(5) Systems may use only data collected under the provisions of this subpart or subpart M of this part to qualify for reduced monitoring.

(b) *Monitoring requirements for disinfection byproducts.* (1) *TTHMs and HAA5.* (i) *Routine monitoring.* Systems must monitor at the frequency indicated in the following table:

ROUTINE MONITORING FREQUENCY FOR TTHM AND HAA5

Type of system	Minimum monitoring frequency	Sample location in the distribution system
Subpart H system serving at least 10,000 persons.	Four water samples per quarter per treatment plant.	At least 25 percent of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods.[1]
Subpart H system serving from 500 to 9,999 persons.	One water sample per quarter per treatment plant.	Locations representing maximum residence time.[1]
Subpart H system serving fewer than 500 persons.	One sample per year per treatment plant during month of warmest water temperature.	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in paragraph (c) of this section.
System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons.	One water sample per quarter per treatment plant[2].	Locations representing maximum residence time.[1]
System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons.	One sample per year per treatment plant[2] during month of warmest water temperature.	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets criteria in paragraph (c) of this section for reduced monitoring.

[1] If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

[2] Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with State approval in accordance with criteria developed under § 142.16(f)(5) of this chapter.

(ii) Systems may reduce monitoring, except as otherwise provided, in accordance with the following table:

Reduced Monitoring Frequency for TTHM and HAA5

If you are a . . .	You may reduce monitoring if you have monitored at least one year and your . . .	To this level
Subpart H system serving at least 10,000 persons which has a source water annual average TOC level, before any treatment, ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L.	One sample per treatment plant per quarter at distribution system location reflecting maximum residence time.
Subpart H system serving from 500 to 9,999 persons which has a source water annual average TOC level, before any treatment, ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L.	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature. NOTE: Any Subpart H system serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.
System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L.	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature
System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L for two consecutive years OR TTHM annual average ≤0.020 mg/L and HAA5 annual average ≤0.015 mg/L for one year.	One sample per treatment plant per three year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring.

(iii) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (b)(1)(i) of this section in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively.

(iv) The State may return a system to routine monitoring at the State's discretion.

(2) *Chlorite.* Community and nontransient noncommunity water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

(i) *Routine monitoring.* (A) *Daily monitoring.* Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by paragraph (b)(2)(ii) of this section, in addition to the sample required at the entrance to the distribution system.

(B) *Monthly monitoring.* Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under paragraph (b)(2)(ii) of this section to meet the requirement for monitoring in this paragraph.

(ii) *Additional monitoring.* On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(iii) *Reduced monitoring.* (A) Chlorite monitoring at the entrance to the distribution system required by paragraph (b)(2)(i)(A) of this section may not be reduced.

(B) Chlorite monitoring in the distribution system required by paragraph (b)(2)(i)(B) of this section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under paragraph (b)(2)(i)(B) of this section has exceeded the chlorite MCL and the system has not been required to conduct monitoring under paragraph (b)(2)(ii) of this section. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under paragraph (b)(2)(i)(B) of this section exceeds the chlorite MCL or the system is required to conduct monitoring under paragraph (b)(2)(ii) of this section, at which time the system must revert to routine monitoring.

(3) *Bromate.* (i) *Routine monitoring.* Community and nontransient noncommunity systems using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. Systems must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(ii) *Reduced monitoring.* Systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is ≥0.05 mg/L, the system must resume routine monitoring

required by paragraph (b)(3)(i) of this section.

(c) *Monitoring requirements for disinfectant residuals.* (1) *Chlorine and chloramines.* (i) *Routine monitoring.* Systems must measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in § 141.21. Subpart H systems may use the results of residual disinfectant concentration sampling conducted under § 141.74(b)(6)(i) for unfiltered systems or § 141.74(c)(3)(i) for systems which filter, in lieu of taking separate samples.

(ii) *Reduced monitoring.* Monitoring may not be reduced.

(2) *Chlorine dioxide.* (i) *Routine monitoring.* Community, nontransient noncommunity, and transient noncommunity water systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by paragraph (c)(2)(ii) of this section, in addition to the sample required at the entrance to the distribution system.

(ii) *Additional monitoring.* On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(iii) *Reduced monitoring.* Chlorine dioxide monitoring may not be reduced.

(d) *Monitoring requirements for disinfection byproduct precursors (DBPP).* (1) *Routine monitoring.* Subpart H systems which use conventional filtration treatment (as defined in § 141.2) must monitor each treatment plant for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. All systems required to monitor under this paragraph (d)(1) must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

(2) *Reduced monitoring.* Subpart H systems with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC ≥2.0 mg/L.

(e) *Bromide.* Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

(f) *Monitoring plans.* Each system required to monitor under this subpart must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the State and the general public no later than 30 days following the applicable compliance dates in § 141.130(b). All Subpart H systems serving more than 3300 people must submit a copy of the monitoring plan to the State no later than the date of the first report required under § 141.134. The State may also require the plan to be submitted by any other system. After review, the State may require changes in any plan elements. The plan must include at least the following elements.

(1) Specific locations and schedules for collecting samples for any parameters included in this subpart.

(2) How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.

(3) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under the provisions of § 141.29, the sampling plan must reflect the entire distribution system.

§ 141.133 Compliance requirements.

(a) *General requirements.* (1) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

(2) All samples taken and analyzed under the provisions of this subpart must be included in determining compliance, even if that number is greater than the minimum required.

(3) If, during the first year of monitoring under § 141.132, any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

(b) *Disinfection byproducts.* (1) *TTHMs and HAA5.* (i) For systems monitoring quarterly, compliance with MCLs in § 141.64 must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by § 141.132(b)(1). If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134. If a PWS fails to complete four consecutive quarters' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(ii) For systems monitoring less frequently than quarterly, compliance must be based on an average of samples taken that year under the provisions of § 141.132(b)(1). If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant.

(iii) Systems on a reduced monitoring schedule whose annual average exceeds the MCL will revert to routine monitoring immediately. These systems

will not be considered in violation of the MCL until they have completed one year of routine monitoring.

(2). *Bromate.* Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by § 141.132(b)(3). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134. If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(3) *Chlorite.* Compliance must be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by § 141.132(b)(2)(i)(B) and § 141.132(b)(2)(ii). If the arithmetic average of any three sample set exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134.

(c) *Disinfectant residuals.* (1) *Chlorine and chloramines.* (i) Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under § 141.132(c)(1). If the average of quarterly averages covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134.

(ii) In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to § 141.134 must clearly indicate which residual disinfectant was analyzed for each sample.

(2) *Chlorine dioxide.* (i) *Acute violations.* Compliance must be based on consecutive daily samples collected by the system under § 141.132(c)(2). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and must take immediate corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks in § 141.32(a)(1)(iii)(E). Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system must notify the public of the violation in accordance with the provisions for acute violations under § 141.32(a)(1)(iii)(E).

(ii) *Nonacute violations.* Compliance must be based on consecutive daily samples collected by the system under § 141.132(c)(2). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for nonacute health risks in § 141.32(e)(78). Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system must notify the public of the violation in accordance with the provisions for nonacute violations under § 141.32(e)(78).

(d) *Disinfection byproduct precursors (DBPP).* Compliance must be determined as specified by § 141.135(b). Systems may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in § 141.135(b)(2) and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to § 141.135(b)(3) and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date.

§ 141.134 Reporting and recordkeeping requirements.

(a) Systems required to sample quarterly or more frequently must report to the State within 10 days after the end of each quarter in which samples were collected, notwithstanding the provisions of § 141.31. Systems required to sample less frequently than quarterly must report to the State within 10 days after the end of each monitoring period in which samples were collected.

(b) *Disinfection byproducts.* Systems must report the information specified in the following table:

If you are a...	You must report...[1]
System monitoring for TTHM and HAA5 under the requirements of §§ 141.132(b) on a quarterly or more frequent basis.	(1) The number of samples taken during the last quarter. (2) The location, date, and result of each sample taken during the last quarter. (3) The arithmetic average of all samples taken in the last quarter. (4) The annual arithmetic average of the quarterly arithmetic averages of this section for the last four quarters. (5) Whether the MCL was exceeded.
System monitoring for TTHMs and HAA5 under the requirements of §§ 141.132(b) less frequently than quarterly (but at least annually).	(1) The number of samples taken during the last year. (2) The location, date, and result of each sample taken during the last quarter. (3) The arithmetic average of all samples taken over the last year (4) Whether the MCL was exceeded.
System monitoring for TTHMs and HAA5 under the requirements of § 141.132(b) less frequently than annually.	(1) The location, date, and result of the last sample taken. (2) Whether the MCL was exceeded.

If you are a...	You must report...[1]
System monitoring for chlorite under the requirements of § 141.132(b) ..	(1) The number of samples taken each month for the last 3 months. (2) The location, date, and result of each sample taken during the last quarter. (3) For each month in the reporting period, the arithmetic average of all samples taken in the month. (4) Whether the MCL was exceeded, and in which month it was exceeded.
System monitoring for bromate under the requirements of § 141.132(b)	(1) The number of samples taken during the last quarter. (2) The location, date, and result of each sample taken during the last quarter. (3) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year. (4) Whether the MCL was exceeded.

(c) *Disinfectants.* Systems must report the information specified in the following table:

If you are a...	You must report...[1]
System monitoring for chlorine or chloramines under the requirements of § 141.132(c).	(1) The number of samples taken during each month of the last quarter. (2) The monthly arithmetic average of all samples taken in each month for the last 12 months. (3) The arithmetic average of all monthly averages for the last 12 months. (4) Whether the MRDL was exceeded.
System monitoring for chlorine dioxide under the requirements of § 141.132(c).	(1) The dates, results, and locations of samples taken during the last quarter. (2) Whether the MRDL was exceeded. (3) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

[1] The State may choose to perform calculations and determine whether the MRDL was exceeded, in lieu of having the system report that information.

(d) *Disinfection byproduct precursors and enhanced coagulation or enhanced softening.* Systems must report the information specified in the following table:

If you are a . . .	You must report . . .[1]
System monitoring monthly or quarterly for TOC under the requirements of § 141.132(d) and required to meet the enhanced coagulation or enhanced softening requirements in § 141.135(b)(2) or (3).	(1) The number of paired (source water and treated water, prior to continuous disinfection) samples taken during the last quarter. (2) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. (3) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. (4) Calculations for determining compliance with the TOC percent removal requirements, as provided in § 141.135(c)(1). (5) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in § 141.135(b) for the last four quarters.
System monitoring monthly or quarterly for TOC under the requirements of § 141.132(d) and meeting one or more of the alternative compliance criteria in § 141.135(a)(2) or (3).	(1) The alternative compliance criterion that the system is using. (2) The number of paired samples taken during the last quarter. (3) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. (4) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in §§ 141.135(a)(2)(i) or (iii) or of treated water TOC for systems meeting the criterion in § 141.135(a)(2)(ii).

If you are a . . .	You must report . . .[1]
	(5) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in § 141.135(a)(2)(v) or of treated water SUVA for systems meeting the criterion in § 141.135(a)(2)(vi). (6) The running annual average of source water alkalinity for systems meeting the criterion in § 141.135(a)(2)(iii) and of treated water alkalinity for systems meeting the criterion in § 141.135(a)(3)(i). (7) The running annual average for both TTHM and HAA5 for systems meeting the criterion in § 141.135(a)(2)(iii) or (iv). (8) The running annual average of the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criterion in § 141.135(a)(3)(ii). (9) Whether the system is in compliance with the particular alternative compliance criterion in § 141.135(a)(2) or (3).

[1] The State may choose to perform calculations and determine whether the treatment technique was met, in lieu of having the system report that information.

§ 141.135 Treatment technique for control of disinfection byproduct (DBP) precursors.

(a) *Applicability.* (1) Subpart H systems using conventional filtration treatment (as defined in § 141.2) must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in paragraph (b) of this section unless the system meets at least one of the alternative compliance criteria listed in paragraph (a)(2) or (a)(3) of this section.

(2) *Alternative compliance criteria for enhanced coagulation and enhanced softening systems.* Subpart H systems using conventional filtration treatment may use the alternative compliance criteria in paragraphs (a)(2)(i) through (vi) of this section to comply with this section in lieu of complying with paragraph (b) of this section. Systems must still comply with monitoring requirements in § 141.132(d).

(i) The system's source water TOC level, measured according to § 141.131(d)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

(ii) The system's treated water TOC level, measured according to § 141.131(d)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

(iii) The system's source water TOC level, measured as required by § 141.131(d)(3), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to § 141.131(d)(1), is greater than 60 mg/L (as $CaCO_3$), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in § 141.130(b), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in § 141.130(b) to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the State for approval not later than the effective date for compliance in § 141.130(b). These technologies must be installed and operating not later than June 16, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation of National Primary Drinking Water Regulations.

(iv) The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

(v) The system's source water SUVA, prior to any treatment and measured monthly according to § 141.131(d)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(vi) The system's finished water SUVA, measured monthly according to § 141.131(d)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(3) *Additional alternative compliance criteria for softening systems.* Systems practicing enhanced softening that cannot achieve the TOC removals required by paragraph (b)(2) of this section may use the alternative compliance criteria in paragraphs (a)(3)(i) and (ii) of this section in lieu of complying with paragraph (b) of this section. Systems must still comply with monitoring requirements in § 141.132(d).

(i) Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as $CaCO_3$), measured monthly according to § 141.131(d)(1) and calculated quarterly as a running annual average.

(ii) Softening that results in removing at least 10 mg/L of magnesium hardness (as $CaCO_3$), measured monthly and calculated quarterly as an annual running average.

(b) *Enhanced coagulation and enhanced softening performance requirements.* (1) Systems must achieve the percent reduction of TOC specified in paragraph (b)(2) of this section between the source water and the combined filter effluent, unless the State approves a system's request for alternate minimum TOC removal (Step 2) requirements under paragraph (b)(3) of this section.

(2) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with § 141.131(d). Systems practicing softening are required to meet the Step 1 TOC reductions in the far-right column (Source water alkalinity >120 mg/L) for the specified source water TOC:

STEP 1 REQUIRED REMOVAL OF TOC BY ENHANCED COAGULATION AND ENHANCED SOFTENING FOR SUBPART H SYSTEMS USING CONVENTIONAL TREATMENT [1, 2]

Source-water TOC, mg/L	Source-water alkalinity, mg/L as $CaCO_3$		
	0–60 (percent)	≤60–120 (percent)	>120 [3] (percent)
>2.0–4.0	35.0	25.0	15.0
>4.0–8.0	45.0	35.0	25.0
>8.0	50.0	40.0	30.0

[1] Systems meeting at least one of the conditions in paragraph (a)(2)(i)–(vi) of this section are not required to operate with enhanced coagulation.
[2] Softening systems meeting one of the alternative compliance criteria in paragraph (a)(3) of this section are not required to operate with enhanced softening.
[3] Systems practicing softening must meet the TOC removal requirements in this column.

(3) Subpart H conventional treatment systems that cannot achieve the Step 1 TOC removals required by paragraph (b)(2) of this section due to water quality parameters or operational constraints must apply to the State, within three months of failure to achieve the TOC removals required by paragraph (b)(2) of this section, for approval of alternative minimum TOC (Step 2) removal requirements submitted by the system. If the State approves the alternative minimum TOC removal (Step 2) requirements, the State may make those requirements retroactive for the purposes of determining compliance. Until the State approves the alternate minimum TOC removal (Step 2) requirements, the system must meet the Step 1 TOC removals contained in paragraph (b)(2) of this section.

(4) *Alternate minimum TOC removal (Step 2) requirements.* Applications made to the State by enhanced coagulation systems for approval of alternative minimum TOC removal (Step 2) requirements under paragraph (b)(3) of this section must include, as a minimum, results of bench- or pilot-scale testing conducted under paragraph (b)(4)(i) of this section and used to determine the alternate enhanced coagulation level.

(i) *Alternate enhanced coagulation level is defined as* coagulation at a coagulant dose and pH as determined by the method described in paragraphs (b)(4)(i) through (v) of this section such that an incremental addition of 10 mg/L of alum (as aluminum) (or equivalent amount of ferric salt) results in a TOC removal of ≤ 0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the State, this minimum requirement supersedes the minimum TOC removal required by the table in paragraph (b)(2) of this section. This requirement will be effective until such time as the State approves a new value based on the results of a new bench- and pilot-scale test. Failure to achieve State-set alternative minimum TOC removal levels is a violation of National Primary Drinking Water Regulations.

(ii) Bench- or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/L increments of alum (as aluminum) (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

ENHANCED COAGULATION STEP 2 TARGET pH

Alkalinity (mg/L as $CaCO_3$)	Target pH
0–60	5.5
>60–120	6.3
>120–240	7.0
>240	7.5

(iii) For waters with alkalinities of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (as aluminum) (or equivalant addition of iron coagulant) is reached.

(iv) The system may operate at any coagulant dose or pH necessary (consistent with other NPDWRs) to achieve the minimum TOC percent removal approved under paragraph (b)(3) of this section.

(v) If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose (as aluminum) at all dosages of alum (or equivalant addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the State for a waiver of enhanced coagulation requirements.

(c) *Compliance calculations.* (1) Subpart H systems other than those identified in paragraph (a)(2) or (a)(3) of this section must comply with requirements contained in paragraph (b)(2) of this section. Systems must calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

(i) Determine actual monthly TOC percent removal, equal to:

(1—(treated water TOC/source water TOC)) × 100

(ii) Determine the required monthly TOC percent removal (from either the table in paragraph (b)(2) of this section or from paragraph (b)(3) of this section).

(iii) Divide the value in paragraph (c)(1)(i) of this section by the value in paragraph (c)(1)(ii) of this section.

(iv) Add together the results of paragraph (c)(1)(iii) of this section for the last 12 months and divide by 12.

(v) If the value calculated in paragraph (c)(1)(iv) of this section is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(2) Systems may use the provisions in paragraphs (c)(2)(i) through (v) of this section in lieu of the calculations in paragraph (c)(1)(i) through (v) of this section to determine compliance with TOC percent removal requirements.

(i) In any month that the system's treated or source water TOC level, measured according to § 141.131(d)(3), is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(ii) In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as $CaCO_3$), the system may assign a

monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(iii) In any month that the system's source water SUVA, prior to any treatment and measured according to § 141.131(d)(4), is ≤2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(iv) In any month that the system's finished water SUVA, measured according to § 141.131(d)(4), is ≤2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(v) In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/L (as $CaCO_3$), the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(3) Subpart H systems using conventional treatment may also comply with the requirements of this section by meeting the criteria in paragraph (a)(2) or (3) of this section.

(d) *Treatment technique requirements for DBP precursors.* The Administrator identifies the following as treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems: For Subpart H systems using conventional treatment, enhanced coagulation or enhanced softening.

11. Section 141.154 is amended by adding paragraph (e) to read as follows:

§ 141.154 Required additional health information.

* * * * *

(e) Community water systems that detect TTHM above 0.080 mg/l, but below the MCL in § 141.12, as an annual average, monitored and calculated under the provisions of § 141.30, must include health effects language prescribed by paragraph (73) of appendix C to subpart O.

PART 142—NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION

12. The authority citation for part 142 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g-1, 300g-2 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, 300j-9, and 300j-11.

13. Section 142.14 is amended by adding new paragraphs (d)(12), (d)(13), (d)(14), (d)(15), and (d)(16) to read as follows.

§ 142.14 Records kept by States.

* * * * *

(d) * * *

(12) Records of the currently applicable or most recent State determinations, including all supporting information and an explanation of the technical basis for each decision, made under the following provisions of 40 CFR part 141, subpart L for the control of disinfectants and disinfection byproducts. These records must also include interim measures toward installation.

(i) States must keep records of systems that are installing GAC or membrane technology in accordance with § 141.64(b)(2) of this chapter. These records must include the date by which the system is required to have completed installation.

(ii) States must keep records of systems that are required, by the State, to meet alternative minimum TOC removal requirements or for whom the State has determined that the source water is not amenable to enhanced coagulation in accordance with § 141.135(b)(3) and (4) of this chapter, respectively. These records must include the alternative limits and rationale for establishing the alternative limits.

(iii) States must keep records of subpart H systems using conventional treatment meeting any of the alternative compliance criteria in § 141.135(a)(2) or (3) of this chapter.

(iv) States must keep a register of qualified operators that have met the State requirements developed under § 142.16(f)(2).

(13) Records of systems with multiple wells considered to be one treatment plant in accordance with § 141.132(a)(2) of this chapter and § 142.16(f)(5).

(14) Monitoring plans for subpart H systems serving more than 3,300 persons in accordance with § 141.132(f) of this chapter.

(15) List of laboratories approved for analyses in accordance with § 141.131(b) of this chapter.

(16) List of systems required to monitor for disinfectants and disinfection byproducts in accordance with part 141, subpart L of this chapter. The list must indicate what disinfectants and DBPs, other than chlorine, TTHM, and HAA5, if any, are measured.

* * * * *

14. Section 142.16 is amended by adding paragraph (h) to read as follows.

§ 142.16 Special primacy requirements.

* * * * *

(h) *Requirements for States to adopt 40 CFR part 141, subpart L.* In addition to the general primacy requirements elsewhere in this part, including the requirement that State regulations be at least as stringent as federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart L, must contain a description of how the State will accomplish the following program requirements:

(1) Section 141.64(b)(2) of this chapter (interim treatment requirements). Determine any interim treatment requirements for those systems electing to install GAC or membrane filtration and granted additional time to comply with § 141.64 of this chapter.

(2) Section 141.130(c) of this chapter (qualification of operators). Qualify operators of public water systems subject to 40 CFR part 141, subpart L. Qualification requirements established for operators of systems subject to 40 CFR part 141, subpart H—Filtration and Disinfection may be used in whole or in part to establish operator qualification requirements for meeting 40 CFR part 141, subpart L requirements if the State determines that the 40 CFR part 141, subpart H requirements are appropriate and applicable for meeting subpart L requirements.

(3) Section 141.131(c)(2) of this chapter (DPD colorimetric test kits). Approve DPD colorimetric test kits for free and total chlorine measurements. State approval granted under § 141.74(a)(2) of this chapter for the use of DPD colorimetric test kits for free chlorine testing is acceptable for the use of DPD test kits in measuring free chlorine residuals as required in 40 CFR part 141, subpart L.

(4) Sections 141.131(c)(3) and (d) of this chapter (State approval of parties to conduct analyses). Approve parties to conduct pH, bromide, alkalinity, and residual disinfectant concentration measurements. The State's process for approving parties performing water quality measurements for systems subject to 40 CFR part 141, subpart H requirements in paragraph (b)(2)(i)(D) of this section may be used for approving parties measuring water quality parameters for systems subject to subpart L requirements, if the State determines the process is appropriate and applicable.

Contaminant (units)	MCLG	MCL	Major sources in drinking water
65. 1,2-Dichloropropane (ppb)	0	5	Discharge from industrial chemical factories.
66. Ethylbenzene (ppb)	700	700	Discharge from petroleum refineries.
67. Styrene (ppb)	100	100	Discharge from rubber and plastic factories; Leaching from landfills.
68. Tetrachloroethylene (ppb)	0	5	Leaching from PVC pipes; Discharge from factories and dry cleaners.
69. 1,2,4-Trichlorobenzene (ppb)	70	70	Discharge from textile-finishing factories.
70. 1,1,1-Trichloroethane (ppb)	200	200	Discharge from metal degreasing sites and other factories.
71. 1,1,2-Trichloroethane (ppb)	3	5	Discharge from industrial chemical factories.
72. Trichloroethylene (ppb)	0	5	Discharge from metal degreasing sites and other factories.
73. TTHMs [Total trihalomethanes] (ppb)	n/a	100	By-product of drinking water chlorination.
74. Toluene (ppm)	1	1	Discharge from petroleum factories.
75. Vinyl Chloride (ppb)	0	2	Leaching from PVC piping; Discharge from plastics factories.
76. Xylenes (ppm)	10	10	Discharge from petroleum factories; Discharge from chemical factories.

[63 FR 44526, Aug. 19, 1998; 64 FR 34733, June 29, 1999]

APPENDIX C TO SUBPART O—HEALTH EFFECTS LANGUAGE

MICROBIOLOGICAL CONTAMINANTS

(1) Total Coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

(2) Fecal coliform/E.Coli. Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

(3) Turbidity. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

RADIOACTIVE CONTAMINANTS

(4) Beta/photon emitters. Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.

(5) Alpha emitters. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

(6) Combined Radium 226/228. Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

INORGANIC CONTAMINANTS

(7) Antimony. Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

(8) Arsenic. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

(9) Asbestos. Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

(10) Barium. Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

(11) Beryllium. Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.

(12) Cadmium. Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.

(13) Chromium. Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

(14) Copper. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level

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over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

(15) Cyanide. Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

(16) Fluoride. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.

(17) Lead. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

(18) Mercury (inorganic). Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.

(19) Nitrate. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(20) Nitrite. Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(21) Selenium. Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.

(22) Thallium. Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.

SYNTHETIC ORGANIC CONTAMINANTS INCLUDING PESTICIDES AND HERBICIDES

(23) 2,4-D. Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.

(24) 2,4,5-TP (Silvex). Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.

(25) Acrylamide. Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.

(26) Alachlor. Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.

(27) Atrazine. Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.

(28) Benzo(a)pyrene (PAH). Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.

(29) Carbofuran. Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.

(30) Chlordane. Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.

(31) Dalapon. Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.

(32) Di (2-ethylhexyl) adipate. Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties.

(33) Di (2-ethylhexyl) phthalate. Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.

(34) Dibromochloropropane (DBCP). Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

(35) Dinoseb. Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.

(36) Dioxin (2,3,7,8-TCDD). Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

(37) Diquat. Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.

(38) Endothall. Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.

(39) Endrin. Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.

(40) Epichlorohydrin. Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

(41) Ethylene dibromide. Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.

(42) Glyphosate. Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.

(43) Heptachlor. Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.

(44) Heptachlor epoxide. Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.

(45) Hexachlorobenzene. Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.

(46) Hexachlorocyclopentadiene. Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.

(47) Lindane. Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.

(48) Methoxychlor. Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.

(49) Oxamyl [Vydate]. Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.

(50) PCBs [Polychlorinated biphenyls]. Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.

(51) Pentachlorophenol. Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.

(52) Picloram. Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.

(53) Simazine. Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.

(54) Toxaphene. Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.

VOLATILE ORGANIC CONTAMINANTS

(55) Benzene. Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.

(56) Carbon Tetrachloride. Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

(57) Chlorobenzene. Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.

(58) o-Dichlorobenzene. Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.

(59) p-Dichlorobenzene. Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.

(60) 1,2-Dichloroethane. Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.

(61) 1,1-Dichloroethylene. Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

(62) cis-1,2-Dichloroethylene. Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

(63) trans-1,2-Dicholoroethylene. Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.

(64) Dichloromethane. Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.

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Subpart P—Enha and Disin

SOURCE: 63 FR 69516,
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(65) 1,2-Dichloropropane. Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.

(66) Ethylbenzene. Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.

(67) Styrene. Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.

(68) Tetrachloroethylene. Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.

(69) 1,2,4-Trichlorobenzene. Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.

(70) 1,1,1,-Trichloroethane. Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.

(71) 1,1,2-Trichloroethane. Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.

(72) Trichloroethylene. Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

(73) TTHMs [Total Trihalomethanes]. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

(74) Toluene. Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.

(75) Vinyl Chloride. Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

(76) Xylenes. Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

Subpart P—Enhanced Filtration and Disinfection

SOURCE: 63 FR 69516, Dec. 16, 1998, unless otherwise noted.

§ 141.170 General requirements.

(a) The requirements of this subpart P constitute national primary drinking water regulations. These regulations establish requirements for filtration and disinfection that are in addition to criteria under which filtration and disinfection are required under subpart H of this part. The requirements of this subpart are applicable to subpart H systems serving at least 10,000 people, beginning December 17, 2001 unless otherwise specified in this subpart. The regulations in this subpart establish or extend treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. Each subpart H system serving at least 10,000 people must provide treatment of its source water that complies with these treatment technique requirements and are in addition to those identified in § 141.70. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(1) At least 99 percent (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems, or *Cryptosporidium* control under the watershed control plan for unfiltered systems.

(2) Compliance with the profiling and benchmark requirements under the provisions of § 141.172.

(b) A public water system subject to the requirements of this subpart is considered to be in compliance with the requirements of paragraph (a) of this section if:

(1) It meets the requirements for avoiding filtration in §§ 141.71 and 141.171 and the disinfection requirements in §§ 141.72 and 141.172; or

(2) It meets the applicable filtration requirements in either § 141.73 or § 141.173 and the disinfection requirements in §§ 141.72 and 141.172.

(c) Systems are not permitted to begin construction of uncovered finished water storage facilities beginning February 16, 1999.

Federal Register

Tuesday,
January 16, 2001

Part V

Environmental Protection Agency

40 CFR Parts 9, 141, and 142
Revisions to the Interim Enhanced Surface Water Treatment Rule (IESWTR), the Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1DBPR), and Revisions to State Primacy Requirements To Implement the Safe Drinking Water Act (SDWA) Amendments; Final Rule

is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective February 15, 2001.

List of Subjects in 40 CFR Parts 9, 141, and 142

Environmental protection, Analytical methods, Drinking water, Intergovernmental relations, Public utilities, Reporting and recordkeeping requirements, Reservoirs, Utilities, Water supply, Watersheds.

Dated: December 22, 2000.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, title 40 of the Code of Federal Regulations is amended as follows:

PART 9—OMB APPROVALS UNDER THE PAPERWORK REDUCTION ACT

1. The authority citation for part 9 continues to read:

Authority: 7 U.S.C. 135 *et seq.*, 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735; 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–1, 300j–2, 300j–3, 300j–4, 300j–9, 1857 *et seq.*, 6901–6992k, 7401–7671q, 7542, 9601–9657, 11023, 11048.

2. Section 9.1 is amended by removing the entry for § 141.174–141.175 in the table and adding new entries in its place to read as follows:

§ 9.1 [Amended]

* * * * *

40 CFR citation	*OMB control No.*
* * * * *	
141.174(a)–(b)	2040–0205
141.175	2040–0205
141.175(a)–(b)	2040–0205
141.175(c)	2040–0090
* * * * *	

PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

3. The authority citation for part 141 continues to read:

Authority: 42 U.S.C. 300f, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–4, 300j–9, and 300j–11.

§ 141.12 [Amended]

4. Section 141.12 is amended by revising "December 16, 2001" to read "December 31, 2001" and by revising the two occurrences of "December 16, 2003" to read "December 31, 2003".

§ 141.30 [Amended]

5. Amend § 141.30 by:

a. Revising the first sentence of paragraph (e); and

b. In paragraph (h), revising "December 16, 2001" to read "December 31, 2001", and revising the two occurrences of "December 16, 2003" to read "December 31, 2003".

§ 141.30 Total trihalomethanes sampling, analytical and other requirements.

* * * * *

(e) Sampling and analyses made pursuant to this section shall be conducted by one of the total trihalomethanes methods as directed in § 141.24(e), and the *Technical Notes on Drinking Water Methods*, EPA–600/R–94–173, October 1994, which is available from NTIS, PB–104766, or in § 141.131(b). * * *

* * * * *

§ 141.64 [Amended]

6. Amend § 141.64 by:

a. In paragraph (b)(1), revising "December 16, 2001" to read "January 1, 2002" and revising "December 16, 2003" to read "January 1, 2004"; and

b. In paragraph (b)(2), revising "December 16, 2003" to read "December 31, 2003".

§ 141.65 [Amended]

7. Section 141.65, paragraphs (b)(1) and (b)(2) are amended by revising "December 16, 2001" to read "January 1, 2002" and revising "December 16, 2003" to read "January 1, 2004", wherever they appear.

§ 141.71 [Amended]

8. Section 141.71(b)(6) is amended by revising the two occurrences of "December 17, 2001" to read "December 31, 2001".

§ 141.73 [Amended]

9. Amend § 141.73 by:

a. In paragraph (a)(3), revising "December 17, 2001" to read "January 1, 2002"; and

b. In paragraph (d), revising "December 17, 2001" to read "January 1, 2002".

§ 141.130 [Amended]

10. Amend § 141.130 by:

a. In paragraphs (b)(1) and (b)(2), revising "December 16, 2001" to read "January 1, 2002" and revising "December 16, 2003" to read "January 1, 2004"; and

b. In paragraph (b)(2), removing the phrase "and chlorite" from the first and second sentences.

§ 141.131 [Amended]

11. Amend § 141.131 by revising the first sentence of paragraph (b)(2) and adding paragraph (b)(3) to read:

§ 141.131 Analytical requirements.

* * * * *

(b) * * *

(2) Analysis under this section for disinfection byproducts must be conducted by laboratories that have received certification by EPA or the State, except as specified under paragraph (b)(3) of this section. * * *

(3) A party approved by EPA or the State must measure daily chlorite samples at the entrance to the distribution system.

* * * * *

§ 141.132 [Amended]

12. Amend § 141.132 by:

a. In paragraph (a)(2), revising the reference "§ 142.16(f)(5)" to read "§ 142.16(h)(5)";

b. In paragraph (b)(1)(i), revising the third and fifth entries and footnote 2 in the table;

c. In paragraph (b), revising the last two sentences in paragraph (b)(1)(iii), redesignating paragraph (b)(1)(iv) as (b)(1)(v), adding a new paragraph (b)(1)(iv); and

d. In paragraph (c), revising the first sentence after the heading in paragraph (c)(1)(i).

The addition and revisions read as follows:

§ 141.132 Monitoring requirements.

* * * * *

(b) * * *

(1) * * *

(i) * * *

ROUTINE MONITORING FREQUENCY FOR TTHM AND HAA5

Type of system	Minimum monitoring frequency	Sample location in the distribution system
* *	* * *	* *
Subpart H system serving fewer than 500 persons.	One sample per year per treatment plant during month of warmest water temperature.	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets criteria in paragraph (b)(1)(iv) of this section.
* *	* * *	* *
System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons.	One sample per year per treatment plant[2] during month of warmest water temperature.	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets criteria in paragraph (b)(1)(iv) of this section.
* *	* * *	* *

[1] If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

[2] Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with State approval in accordance with criteria developed under § 142.16(h)(5) of this chapter.

(ii) * * *

(iii) * * * Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (b)(1)(i) of this section (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L or 0.045 mg/L for TTHM or HAA5 respectively. For systems using only ground water not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system must go to the increased monitoring identified in paragraph (b)(1)(i) of this section (sample location column) in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5 respectively.

(iv) Systems on increased monitoring may return to routine monitoring if, after at least one year of monitoring their TTHM annual average is ≤0.060 mg/L and their HAA5 annual average is ≤0.045 mg/L.

* * * * *

(c) * * *

(1) * * *

(i) *Routine Monitoring.* Community and nontransient noncommunity water systems that use chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in § 141.21. * * *

* * * * *

13. Amend § 141.133 by:

a. In the first sentence of paragraph (a)(1), revising "system's failure" to read "system fails";

b. In paragraph (b), removing the last two sentences of paragraph (b)(1)(i), revising paragraphs (b)(1) (ii) and (iii), and adding new paragraph (b)(1)(iv);

c. In paragraph (c), removing the phrase "of quarterly averages" in the second sentence of paragraph (c)(1)(i) and adding the phrase "in addition to reporting to the State pursuant to § 141.134" to the end of the second and third sentences in paragraph (c)(2)(i) and the second and third sentences of paragraph (c)(2)(ii); and

d. In paragraph (d), revising the reference "§ 141.135(b)" in the first sentence to read "§ 141.135(c)" and adding a sentence to the end of the paragraph.

The additions and revisions as follows

§ 141.133 Compliance requirements.

* * * * *

(b) * * *

(1) * * *

(ii) For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under the provisions of § 141.132(b)(1) does not exceed the MCLs in § 141.64. If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring must calculate compliance by including the sample which triggered the increased monitoring plus the following three quarters of monitoring.

(iii) If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 141.32 or § 141.202, whichever is effective for your system, in addition to reporting to the State pursuant to § 141.134.

(iv) If a PWS fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period must be

based on an average of the available data.

* * * * *

(d) * * * For systems required to meet Step 1 TOC removals, if the value calculated under § 141.135(c)(1)(iv) is less than 1.00, the system is in violation of the treatment technique requirements and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134.

14. Amend § 141.134 by:

a. In paragraph (b), revising the table;

b. In paragraph (c), revising the table; and

c. In paragraph (d), revising the first entry in the table, designating the second entry in the first column as (2), and redesignating its corresponding entries in the second column as (i) through (ix).

The revisions read as follows:

§ 141.134 Reporting and recordkeeping requirements.

* * * * *

(b) * * *

If you are a * * *	You must report * * *
(1) System monitoring for TTHMs and HAA5 under the requirements of § 141.132(b) on a quarterly or more frequent basis.	(i) The number of samples taken during the last quarter. (ii) The location, date, and result of each sample taken during the last quarter. (iii) The arithmetic average of all samples taken in the last quarter. (iv) The annual arithmetic average of the quarterly arithmetic averages of this section for the last four quarters. (v) Whether, based on § 141.133(b)(1), the MCL was violated.
(2) System monitoring for TTHMs and HAA5 under the requirements of § 141.132(b) less frequently than quarterly (but as least annually).	(i) The number of samples taken during the last year. (ii) The location, date, and result of each sample taken during the last monitoring period. (iii) The arithmetic average of all samples taken over the last year. (iv) Whether, based on § 141.133(b)(1), the MCL was violated.
(3) System monitoring for TTHMs and HAA5 under the requirements of § 141.132(b) less frequently than annually.	(i) The location, date, and result of each sample taken (ii) Whether, based on § 141.133(b)(1), the MCL was violated.
(4) System monitoring for chlorite under the requirements of § 141.132(b).	(i) The number of entry point samples taken each month for the last 3 months. (ii) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter. (iii) For each month in the reporting period, the arithmetic average of all samples taken in each three samples set taken in the distribution system. (iv) Whether, based on § 141.133(b)(3), the MCL was violated, in which month, and how many times it was violated each month.
(5) System monitoring for bromate under the requirements of § 141.132(b).	(i)The number of samples taken during the last quarter. (ii)The location, date, and result of each sample taken during the last quarter. (iii) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year. (iv) Whether, based on § 141.133(b)(2), the MCL was violated.

[1]The State may choose to perform calculations and determine whether the MCL was exceeded, in lieu of having the system report that information

(c) * * *

If you are a * * *	You must report * * *
(1) System monitoring for chlorine or chloramines under the requirements of § 141.132(c).	(i) The number of samples taken during each month of the last quarter. (ii) The month arithmetic average of all samples taken in each month for the last 12 months. (iii) The arithmetic average of the monthly averages for the last 12 months. (iv) Whether, based on § 141.133(c)(1), the MRD was violated.
(2) System monitoring for chlorine dioxide under the requirements of § 141.132(c).	(i) The dates, result, and locations of samples taken during the last quarter. (ii) Whether, based on § 141.133(c)(2), the MRDL was violated. (iii) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acuate or nonacute.

[1]The State may choose to perform calculations and determine whether the MRDL was exceeded, in lieu of having the system report that information.

(d) * * *

If you are a * * *	You must report * * *
(1) System monitoring monthly or quarterly for TOC under the requirements of § 141.132(d) and required to meet the enhanced coagulation or enhanced softening requirements in § 141.135(b)(2) or (3).	(i) The number of paired (source water and treated water) samples taken during the last quarter. (ii) The location, date, and results of each paired sample and associated alkalinity taken during the last quarter. (iii) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. (iv) Calculations for determining compliance with the TOC prevent removal requirements, as provided in § 141.135(c)(1). (v) Whether the system is in compliance with the ehnanced coagulation or enhanced softening percent removal requirements in § 141.135(b) in § 141.135(b) for the last four quarters.
* * * * * * *	

[1] The State may choose to perform calculations and determine whether the treatment technique was met, in lieu of having the system report taht information.

§ 141.135 [Amended]

15. Amend § 1A141.135 by:

a. In paragraph (a)(2)(iii), revising "as required by" in the first sentence to read "according to", and revising "June 16, 2005" in the third sentence to read "June 30, 2005";

b. In paragraph (b)(2), revising the table;

c. In paragraph (b)(4), removing the phrase "(as aluminum)" wherever it appears and revising the introductory text; and

d. In paragraph (c)(1), revising the table;

The revisions read as follows:

§ 141.135 Treatment technique for control of disinfection byproduct (DBP) precursors.

* * * * *

(b) * * *

(2) * * *

STEP 1 REQUIRED REMOVAL OF TOC BY ENHANCED COAGULATION AND ENHANCED SOFTENING FOR SUBPART H SYSTEMS USING CONVENTIONAL TREATMENT [1 2]

Source-water TOC, mg/L	Source-water alkalinity, mg/L as $CaCO_3$ (in precentages)		
	0–60	>60–120	>120 [3]
>2.0–4.0	35.0	25.0	15.0
>4.0–8.0	45.0	35.0	25.0
>8.0	50.0	40.0	30.0

[1] Systems meeting at least one of the conditions in paragraph (a)(2)(i)–(vi) of this section are not required to operate with enhanced coagulation.

[2] Softening system meeting one of the alternative compliance criteria in paragraph (a)(3) of this section are not required to operate with enhanced softening.

[3] System practicing softening must meet the TOC removal requirements in this column.

(3) * * *

(4) *Alternate minimum TOC removal (Step 2) requirements.* Applications made to the State by enhanced coagulation systems for approval of alternate minimum TOC removal (Step 2) requirements under paragraph (b)(3) of this section must include, at a minimum, results of bench- or pilot-scale testing conducted under paragraph (b)(4)(i) of this section. The submitted bench- or pilot-scale testing must be used to determine the alternate enhanced coagulation level.

* * * * *

(c) * * *

(1) Subpart H systems other than those identified in paragraph (a)(2) or (a)(3) of this section must comply with requirements contained in paragraph (b)(2) or (b)(3) of this section. * * *

* * * * *

§ 141.170 [Amended]

16. Section 141.170(a) is amended in the introductory text by revising "December 17, 2001" to read "January 1, 2002".

§ 141.172 [Amended]

17. Amend § 141.172 by:

a. In paragraph (a)(2)(iii)(A), revising "March 16, 2000" to read "March 31, 2000";

b. In paragraph (a)(5), revising "December 16, 1999" to read "December 31, 1999" wherever it appears;

c. In paragraph (a)(5)(iii), revising "March 16, 2000" to read "March 31, 2000";

d. In the introductory text of paragraph (b)(2), revising "March 16, 2000" to read "April 1, 2000";

e. In paragraph (b)(3)(i), revising "March 16, 2000" to read "March 31, 2000"; and

f. In paragraph (b)(4)(ii), revising the last sentence to read:

§ 141.172 Disinfection profiling and benchmarking.

* * * * *

(b) * * *

(4) * * *

(ii) * * * The $(CTcalc/CT_{99.9})$ value of each segment and $(\Sigma(CTcalc/CT_{99.9}))$ must be calculated using the method in paragraph (b)(4)(i) of this section.

* * * * *

§ 141.173 [Amended]

18.–19. In § 141.173, amend the introductory text by revising "December 17, 2001" to read "December 31, 2001".

§ 141.175 [Amended]

20. Amend § 141.175 by revising the two occurrences of "December 17, 2001" to read "January 1, 2002" in the introductory text and adding paragraph (c);

§ 141.175 Reporting and recordkeeping requirements

* * * * *

(c) *Additional reporting requirements.*

(1) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must inform the State as soon as possible, but no later than the end of the next business day.

(2) If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the State under § 141.173(b) for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system must inform the State as soon as possible, but no later than the end of the next business day.

PART 142—NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION

21. The authority citation for part 142 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–4, 300j–9, and 300j–11.

22. In § 142.12, revise paragraph (b)(3)(i) and the last sentence of (d)(2), to read as follows:

§ 142.12 Revision of state programs

* * * * *

(b) * * *

(3) * * *

(i) Informing public water systems of the new EPA (and upcoming State) requirements and that EPA will be overseeing implementation of the requirements until the State, if eligible for interim primacy, submits a complete and final primacy revision request to EPA, or in all other cases, until EPA approves the State program revision;

* * * * *

(d) * * *

(2) *Final request.* * * * Complete and final State requests for program revisions shall be submitted within two years of the promulgation of the new or revised EPA regulations, as specified in paragraph (b) of this section.

* * * * *

§ 142.16 [Amended]

23. In the first sentence of paragraph (c)(5), revise the reference "§ 141.16(b)(3)" to read "§ 142.16(b)(3)".

[FR Doc. 01–655 Filed 1–12–01; 8:45 am]

BILLING CODE 6560–50–P

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
May 8, 2001

The Secretary **717-787-2814**

Mr. Robert E. Nyce
Executive Director
Independent Regulatory Review Commission
14th Floor, Harristown II
Harrisburg, PA 17101

RE: Final Rulemaking: Disinfectants and Disinfection Byproducts Rule (D/DBPR) (#7-359)

Dear Bob:

Pursuant to Section 5.1(a) of the Regulatory Review Act, enclosed is a copy of a final-form regulation for review by the Commission. This final rulemaking was approved by the Environmental Quality Board (EQB) on April 17, 2001.

The EPA promulgated the federal D/DBPR on December 16, 1998, with corrective amendments on January 16, 2001. The D/DBPR will regulate treatment practices at public water systems to eliminate or minimize the health risks resulting from both disinfectants and disinfection byproducts at certain levels. Disinfection byproducts result when disinfectants such as chlorine, hypochlorites, and chlorine dioxide react with organic and inorganic matter in the water. The final rulemaking establishes Maximum Residual Disinfectant Levels (MRDLs) and monitoring requirements for free chlorine, combined chlorine, and chlorine dioxide. Maximum Contaminant Levels (MCLs) and monitoring requirements are set for five haloacetic acids (HAA5), chlorite, and bromate, and the current MCL for total trihalomethanes (TTHMs) has been lowered. An exception has been made for bottled water systems that do not use either a chlorine-based disinfectant or oxidant or a source that has been treated with a chlorine-based disinfectant or oxidant; these systems will not be required to monitor for TTHMs and HAA5. The final amendments also establish pre-filtration treatment techniques for public water systems that use conventional filtration in order to reduce source water Total Organic Carbon (TOC), which serves as a precursor to disinfection byproducts.

The D/DBPR applies to all community and nontransient noncommunity water systems that use a chemical disinfectant or oxidant, as well as to transient noncommunity water systems that use chlorine dioxide. Like the federal D/DBPR, there are phased-in effective dates depending upon the size of the system and the type of source water.

The proposed rulemaking was approved by the EQB on July 18, 2000, and published on September 2. Five commentators responded during the 30-day public comment period. Both the Water Resources Advisory Committee and the Small Water Systems Technical Advisory Committee endorsed a draft of the final rulemaking in January 2001.

The Department will provide the Commission with any assistance required to facilitate a thorough review of this final-form regulation. Section 5.1(e) of the Act provides that the Commission shall, within ten days after the expiration of the committee review period, approve or disapprove the final-form regulation.

For additional information, please contact Sharon Trostle, Regulatory Coordinator, at 783-8727.

Sincerely,

David E. Hess
Acting Secretary

Enclosures

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER:	7-359
SUBJECT:	Disinfectants and Disinfection Byproducts Rule (D/DBPR)
AGENCY:	DEPARTMENT OF ENVIRONMENTAL PROTECTION

TYPE OF REGULATION

Proposed Regulation

X Final Regulation

Final Regulation with Notice of Proposed Rulemaking Omitted

120-day Emergency Certification of the Attorney General

120-day Emergency Certification of the Governor

Delivery of Tolled Regulation
a. With Revisions b. Without Revisions

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
5/8/01	Lauren Bonifacio	HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
5-8-01	Sonia Castellini	SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
5-8-01	Elena Pagán	INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL
		LEGISLATIVE REFERENCE BUREAU

April 20, 2001